COLLEGE OF ENGINEERING

J. MIKE WALKER '66 DEPARTMENT OF MECHANICAL ENGINEERING

TEXAS A&M UNIVERSITY

Andreas A. Polycarpou, Ph.D.
Special Provost Appointment Incl. Acting Dean, School of Dentistry (2021-2022)
Past Department Head (2012-2021)
James J. Cain Chair in Mechanical Engineering
Tel: 979.458.5763; Email: apolycarpou@tamu.edu

RE: Dean- Samuel Ginn College of Engineering, Auburn University
To: Auburn Dean of Engineering Search Committee
Date: December 27, 2022

Upon careful evaluation of the engineering dean position at Auburn University, and after discussion with John Mengelt (Breckenridge Partners), as well as a self-evaluation of my career skills and objectives, I would like to pursue this leadership position. Auburn's engineering is a top-ranked and well-respected college, and I will be honored to work with the faculty, students, staff, and administration to lead the college to the next level of preeminence. I have developed the reputation as an experienced, innovative and transformative servant academic leader that listens to all constituents, strategically develops plans, and decisively executes to advance the unit. As I describe below and in my cv, I have done this in three prior academic units: As a founding department chair at Khalifa University, as an external department head at Texas A&M, and as the acting dean of dentistry.

I have experience in strategic and visionary leadership; academic quality, including new programs and championing student success and inclusiveness; scholarship and faculty development, including diverse faculty recruiting at all ranks; external relations and fundraising, including raising $20M gift in 2018 to name the Walker Mechanical engineering department; management and university relations, including campus-wide work; entrepreneurship and technology transfer, including starting a company; and tangible commitment to diversity and inclusiveness, which are desired responsibilities for the dean position.

My high-tech industry experience, and my academic professional and leadership career at two top universities, namely the University of Illinois at Urbana Champaign, rising through the ranks to an endowed professor and associate department head, and my visionary academic leadership for the last 10 years at Texas A&M (both as department head and acting dean), place me in a unique position to undertake the engineering dean position at Auburn. I have completed two terms as department head of Mechanical Engineering as well as an assignment by the provost at the school of dentistry, where I have completed a comprehensive leadership review and also served as acting dean (the school of dentistry is a remote campus located in Dallas). This has been a valuable experience to lead a school that is not in my own discipline: Building trust among the faculty, students, and staff has been a key element to enable me to make changes in the school and enhance the alignment with Texas A&M University. I believe that my experience has prepared me to undertake the Auburn dean position, and will enable me to eagerly partner with faculty, students, administrators and others, to set a strategic vision for the future of the college towards preeminence. Below, please find examples of my experience that relate to Auburn's engineering dean position.

Grow research & continue trajectory of excellence: When I joined Texas A&M as a department head in December 2012, I found a department in mature research areas, including turbomachinery, energy systems, and materials engineering. In July 2013, with my support, seven faculty from mechanical engineering including the department head moved to the newly created department of materials science and engineering. In addition, there were another dozen faculty retirements and departures early in my tenure at A&M. This gave me an unprecedent opportunity to refocus the department with a significant number of new faculty hires. The faculty hires were aligned with a strategic vision towards excellence and based on successful strategic planning and prioritization, and enabled the department to hire diverse faculty in interdisciplinary areas that are well aligned with the

college and university priorities, as well as in areas of national importance; These being cyber-physical systems, autonomy, human/machine interaction, biomechanics/human health, entrepreneurship, and energy. These activities, expanded the research portfolio and the research expenditures are in an upward trajectory and increased by 50% during the last three years of my tenure.

Enhance quality and impact of academic programs: During my tenure as department head at A&M, the number of undergraduate students has grown by 70%. During my leadership, we succeeded to (a) increase the quality of the students entering and graduating our program, (b) the graduation rate has improved significantly with 95% of our students graduating from the department, (c) to enhance the student experience and engagement, I created the Mechanical Engineering (MEEN) Leadership Council that brings together all the student organizations. I established several student organizations, including the MEEN Girls (women in mechanical engineering), TURTLE (Robotics), Society of mechanical engineers Baja team, where I meet with them regularly, and also provide financial support, and (d) re-designed the undergraduate curriculum to include significant experiential learning across the board. Specifically, we pioneered and successfully implemented virtual reality into our classrooms, and the open laboratory concept, which led to my winning of the American Society of Mechanical Engineer's 2019 Edwin F. Church Medal "for contributions in reforming the mechanical engineering curricula, particularly through an emphasis on experiential learning, to reflect changing industry demands and technological advances." Throughout my tenure as department head, I have also been teaching (reduced load) to ensure that students have direct access to me and be informed of everchanging student needs. Based on industry demand and to enhance the revenue stream in the department, I also initiated three degrees: An onsite Masters of Engineering degree, an online Masters of Engineering degree, and a minor in mechanical engineering.

Elevate industry and external relationships: I have enhanced industry relations in the department with significant engagement with our students, fundraising, mentoring and research funding. Specifically, I have restructured the department's Industry Advisory Council (with 50 active members), and put systems in place for strong engagement with the department. The restructured Advisory Council is more diverse and works closely with the department head in fundraising, connecting faculty and students with industry, and providing input on curriculum modernization. I have also worked closely with the local government to set up a downtown autonomous trolly, to increase awareness, benefit the local community, and build long-lasting beneficial relationships. Stemmed from my own experience in working with companies, and my role in starting a company, enables me to bring companies on board and enhance the operations for the unit.

Student and faculty diversity and fostering an environment of inclusion: During my tenure as department head, I hired 42 tenured/tenure-track faculty, which included 5 National Academy of Engineering (NAE) members (a total of 10 full professors), 11 associate professors and 21 assistant professors. From the 42 faculty, 12 were women (29%), and 7 were underrepresented minorities (17%). In addition, I hired 20 non-tenured Academic Professional Track Faculty (APT) (includes professors of practice, instructional faculty, research faculty and lecturers), as well as 7 faculty in the satellite Qatar campus. Noteworthy is the leadership role I played in hiring the 5 NAE members (and their clusters) as part of the Governor University Research Initiative (GURI). From these 5 NAE members, one is female and one is African American. Also, I have established a comprehensive faculty mentoring program for junior and mid-career tenured/tenure-track faculty, and APTs. The strong mentoring program and the positive climate in the department resulted in high satisfaction and retention. In addition to the above-mentioned gains in hiring diverse faculty, we had significant success with students as well: for undergraduate students, the number of female, Hispanic, and African American students increased by 84%, 91% and 100% from 2014 to 2020. I have also established a climate committee that administers a biannual climate survey, that not only engaged faculty, staff, and students on a constructive dialogue, but also improved the climate and the sense of belonging to

the department and institution. In my shoer time as acting dean of dentistry, I have also followed a similar approach to engage faculty and staff to enhance the climate at the school. I applaud the current gains at Auburn, and I am committed to further enhance these gains and accelerate these efforts.

Set and advance a strategic vision for the future of engineering at Auburn: Having superb faculty, students, staff, and infrastructure is absolutely necessary for a preeminent college. Maintaining such a status and its promotion to all stakeholders requires strong marketing and communication efforts to enhance visibility. I have hired and worked with experts to ensure consistent and targeted messaging that gets to the relevant stakeholders. This includes print media, electronic media, as well as promoting faculty in national professional and other visible positions. Both in mechanical engineering and dentistry, I have worked closely with faculty and have built a reputation as a dynamic and transformative leader that eagerly partners with faculty and others to set priorities and effectively execute them. As department head, I have raised significant funds, where the departmental endowment increased from under $30M to $85M. My initial focus was to raise money for junior and mid-career faculty endowed fellowships/career development professorships, to enable me to reward "rising" stars and thus retain them. The number of faculty fellowships in the department has increased from just 1 in 2012 to 12 today. In addition, I secured additional endowed chairs and professorships, as well as excellence unrestricted gifts. My fundraising success has been based on (a) my close working relationship with the development officers imbedded in my department, (b) my sincere passion to connect with people/benefactors, (c) a clear and concise presentation of the vision and needs of the unit, and (d) significant stewarding activities.

Effectively develop resources for the College: It is clear today that state funding in public universities has been reduced. I am an entrepreneur academic leader, since it is important to understand the budget/system, and identify additional revenue streams. Clearly fundraising is a major differentiator for top-ranked colleges, and I have raised over $50M as department head. Based on my experience at Illinois, Khalifa University, and Texas A&M, each budget model is different, and each university provides revenue streams to colleges that are best aligned with their priorities. For example, at Texas A&M, I was able to secure significant resources by launching a successful online undergraduate summer program. Also, collaboration across the institution is very important as it opens additional revenue streams for the college. Specifically, collaboration across the institution is very important to further enhance the infrastructure and collaborations across disciplines. As a department head, I have renovated the main buildings of the department, as far as student study/ gathering spaces, maker space, research laboratories, and faculty/staff spaces, including modern collaboration spaces. With the NAE GURI cluster hires in the department, there were significant investments in new state-of-the-art laboratory spaces, e.g., the STARLAB on the RELLIS campus. These investments could have not been made possible without strong collaboration across the university and stake holders outside the university. The success of such collaborations will enable Auburn to further enhance its competitiveness at the national level to continue winning large multidisciplinary research centers. My current assignment in dentistry has also enabled me to enhance university collaborations between remote campuses, health, engineering, and sciences.

My leadership style is inspired by servant academic leadership, and I have demonstrated the ability to gain the confidence and trust of others through listening and strong communication. I propose to work closely with the departments and leadership to better understand Auburn, and provide energetic and transformative leadership. In closing, I would be honored to be the next dean of engineering at Auburn, where I can work with the faculty, students, staff, and administration to sustain its preeminence and further enhance the reputation and impact of the college.

ANDREAS A. POLYCARPOU

James J. Cain '51 Endowed Chair in Mechanical Engineering
Special Assignment (Incl. Acting Dean), School of Dentistry (2021-2022)
Department Head, Mechanical Engineering (2012-2021)
J. Mike Walker ’66 Mechanical Engineering Department at Texas A&M University
3123 TAMU, College Station, TX 77843-3123, USA
Email: apolycarpou@tamu.edu; Tel: 979-458-5763 (office)

Degrees

1. B.S. Mech. Eng., State University of New York at Buffalo (SUNY) 1990
2. M.S. Mech. Eng., State University of New York at Buffalo (SUNY) 1992
3. Ph.D. Mech. Eng., State University of New York at Buffalo (SUNY) 1994

Administration and Leadership

1. Associate Department Head for Undergraduate Programs, Department of Mechanical Science and Engineering, University of Illinois at Urbana Champaign (UIUC), May 2011–Dec. 2011
2. Founding Department Chair, Department of Mechanical Engineering, Khalifa University, Abu Dhabi, UAE, Nov. 2011–Nov. 2012 (while on leave from UIUC)
3. Co-Founder/Board Member, ATSP Innovations, Houston, TX, Oct. 2010–date
4. Department Head, J. Mike Walker ’66 Department of Mechanical Engineering, Texas A&M University, Dec. 1, 2012–June 30, 2021
5. Special Assignment by the Provost, College of Dentistry, Texas A&M University, Nov. 1, 2021–Nov. 30, 2022 (Acting Department Head of Periodontics, Acting Department Head of Endodontics)
6. Acting Dean, College of Dentistry (renamed School of Dentistry 9/1/2022), Texas A&M University, June 1–Sept. 30, 2022
7. Special Advisor to the Permanent Dean, School of Dentistry, Texas A&M University, Oct. 1, 2022–Nov. 30, 2022

Below are some highlights of Polycarpou’s leadership accomplishments:

Texas A&M University
School of Dentistry (formerly College of Dentistry), 11/2021–date
Acting Department Head, Periodontics, 12/2021–05/2022
Acting Department Head, Endodontics, 02/2022–08/2022
Acting Dean, 06/1/2022–09/2022
Special Advisor to the Permanent Dean, 10/2022–11/2022

The college/school is located in Dallas, Texas and has a reach history since 1905, which was part of Baylor University, then an independent college, and since1997 part of Health Science Center, Texas A&M University.

Due to ongoing issues at the School, I was appointed by the provost (as a senior academic leader) and conducted a comprehensive academic and leadership review of the school. Resulted in the submission of a report to the university leadership with specific recommendations to improve operations and better alignment with the university. I also served as acting department head of two separate clinical departments, where I worked with the faculty to stabilize the departments. Specifically, I re-structured the departments, hired several faculty, established system processes, enhanced the climate and culture, and lead the faculty towards excellence in both clinical education of the predoctoral and postdoctoral programs, and clinical & scientific research related to the discipline.

As Acting Dean of the School, I have (a) established processes and procedures aligned with Texas A&M University, (b) initiated major renovation projects (of $25M) to upgrade the academic building, (c) initiated several additional construction projects to modernize several functional spaces of the school, (d) conducted a school-wide climate survey to establish a reference and funded several initiatives to further improve the climate, (e) established school-wide staff and student excellence awards, (f) established several endowments for faculty professorships and student fellowships, (g) recruited several key faculty and staff members, and (h) implemented administrative processes, including a robust budgeting model.

Texas A&M University
Department Head, Mechanical Engineering, 12/2012 – 06/2021

Mechanical Engineering at Texas A&M is a large public top-ranked department, ranked 3rd globally (2021 Global Ranking of Academic Subjects, Shanghai Ranking), and 11th overall (7th among public universities) in the latest UG rankings by USN&WR. The department is renowned worldwide for its training of superb undergraduate and graduate students, and conducting basic and applied research. It has 67 tenured and tenure-track faculty (including 7 National Academy of Engineering members) and 22 non-tenure-track faculty (in the College Station campus) and 11 faculty in the satellite Doha campus, 32 staff, 1500 undergraduate and 500 graduate students. There are several major research centers directly affiliated with the department, and numerous laboratories, housed in several buildings. The annual budget (College Station) is $45M, including $29M in research expenditures.

Polycarpou successfully completed two four-year terms as Department Head. Polycarpou has instituted several transformative changes in the department, including hiring more than half of the current faculty, and expanded the research portfolio to better align with the college and national priorities. The research expenditures are in an upward trajectory and increased by 50% during the last few years. Polycarpou's leadership style is an adaptation of servant leadership, leading by example, and making decisions that he feels are in the best interest of the unit and the institution. The department is in an excellent state and on its way to further improve its standing among top institutions. A list of accomplishments is given below, which are characterized by bold leadership and an ambitious vision for the department.

- Recruited 42 tenured/tenured-track faculty, including 10 full professors (5 being NAE members that won major grants from the Governor University Research Initiative and the Chancellor Research Initiative), 11 associate professors, and 21 assistant professors. 12 of these hires are women (29%) and 7 are underrepresent minorities. Also, recruited 20 non-tenured-track faculty, including professors of practice, instructional and research faculty;
- Led the faculty through a continuous strategic planning process to identify the strengths, weaknesses, opportunities and threads (SWOT) of the department and the areas to invest (hiring priorities and research center-like initiatives). The new hires have been focused in several cluster areas including bio/health, safe autonomous vehicles, robotics, advanced manufacturing, design, and energy; The research expenditures in the department are in an upward trend, and expected to increase substantially in the next few years, especially with the new hires in strategic areas;
- Significant development (fundraising) activities at the department with priority on junior faculty professorships and graduate student fellowships. Specifically, Polycarpou raised money and established the following endowments: 5 new Chair professor positions, 5 new professorships, 1 career development professorship, and 11 faculty fellowships. Also, he quadrupled the amount given out in graduate fellowships and significantly increased the amount given out for undergraduate scholarships. In September 2018, a major gift was also secured to name the department. The total endowments raised during Polycarpou's tenure as Department Head are in excess of $50M;
- Through the Hagler Institute of Advanced Studies (HIAS) program at Texas A&M University, Polycarpou attracted 12 distinguished NAE members from other institutions to spend time at Texas A&M to work with faculty and students on significant and impactful areas;

Led the "25x25" growth and implementation initiative for Mechanical Engineering. 25x25 refers to doubling the overall College of Engineering students to 25,000 by the year 2025. Mechanical Engineering is growing in undergraduate student population, distance learning masters of engineering students and the Ph.D. program is tied to the number of tenured-track/tenured faculty. Since 2013, both the number of students and total number of faculty has grown by about 55%;

Renovations of the two main Mechanical Engineering Buildings to modernize the department. Created student spaces conducive to modern studying habits of the students. Currently, plans are underway for renovations of one of our research buildings, embracing the concept of shared laboratories;

Tangibly supported the creation of the Materials Science and Engineering Department in the colleges of Engineering and Science (2013), with 6 Mechanical Engineering faculty moving to the new department, including the Head of the new department. Recently a new multi-disciplinary engineering department was created and the Department Head is one of the Mechanical Engineering faculty;

Established a formal junior faculty mentoring program, and recently launched a mid-career faculty mentoring program, and a mentoring program for academic track professional faculty;

Established a national and international communications and marketing campaign to enhance the visibility of the department. He has been actively nominating faculty for national/international awards;

Under Polycarpou's leadership, experiential learning for undergraduate students has been enhanced through investments in undergraduate laboratories and curriculum re-design. Specifically, a new sophomore course was introduced to expose the students to geometrical modeling and design that includes a maker space/3D printing studio. A major modification to the undergraduate curriculum to enhance the design stem and experiential learning, and incorporate modern technical electives, including entrepreneurship, has been approved by the faculty and is under implementation. In 2020 under Polycarpou's leadership, we won an NSF RED (Revolutionize Engineering Departments) grant to transform the culture in the department;

Under Polycarpou's leadership, the diversity number of undergraduate students has increased substantially. Specifically, 84% female, 100% African American, and 91% Hispanic increases. Increases have been achieved in female and underrepresented minorities faculty;

During Polycarpou's tenure as Head, several new programs were launched at the department, including a minor in Mechanical Engineering, a distance learning MEng, and an onsite MEng;

Completed successful Graduate Program reviews in 2013, and 2019, and ABET accreditation in 2016; and

During the COVID-19 era, Polycarpou has led efforts to continue our mission, and has been mentoring several other junior Department Heads in the college.

Khalifa University (while on leave from UIUC)
Founding Chair, Mechanical Engineering, 11/2011 – 11/2012

While on leave from Illinois, Polycarpou served as the Founding Chair at the newly established Khalifa University, in Abu Dhabi, UAE. The model for this University is to serve the nationals with an emphasis on high quality experiential undergraduate education and stake-holder driven multi-disciplinary research centers. When Polycarpou joined the department, it had over 100 undergraduate students and only 1 faculty. During the short time in Abu Dhabi, Polycarpou accomplished the following:

Recruited 11 faculty at all ranks, including the current Department Chair;

Based on a strategic retreat, hired faculty in three clusters, relevant to the local economy;

Based on a directive from the Board of Trustees, Polycarpou led a major modification to the undergraduate curriculum to enhance (i) design stem and experiential learning, (ii) conform to a common first year in engineering, and (iii) all courses are 3 or 4 credit hours; and

Initiated the effort to design and set up (i) undergraduate teaching laboratories; (ii) research laboratories, and (iii) shared facilities.

University of Illinois at Urbana-Champaign
Associate Department Head for UG Programs, Mechanical Sci. and Eng., 05/2011 – 12/2011
Campus Leadership, 2008 – 2011

The Department of Mechanical Science and Engineering is a highly ranked department and excels in all academic areas. During the short stint in this role, the main accomplishments were: (a) re-structured and expanded the undergraduate office to enable better serving the undergraduate students; and (b) work closely with the newly appointed Department Head in setting priorities for the department.

While on the faculty at Illinois, Polycarpou held several campus-level positions. Most notable was his election to the campus-wide level Faculty Advisory Committee, serving as Chair of the committee for a short time. The charge of the committee based on the university's statutes is to "provide for the orderly voicing of suggestions for the good of the University." This committee also serves as the upper-level grievance committee of the university. Serving in this committee, which dealt with tenure termination and high-level grievances, enables the better understanding of shared governance and critical decision making.

Polycarpou also served a three-year term as an appointed committee member of the Campus Promotion and Tenure Committee. This is the upper-level body that reviews all campus promotion and tenure cases and makes recommendations to the Provost and Vice Chancellor for Academic Affairs. The committee typically deals with over 100 cases per year. This committee deals with promotion and tenure across all disciplines, and provides an excellent opportunity to understand and respect excellence beyond one's own discipline.

Polycarpou served as a member of the inaugural Compliance Advisory Committee, appointed by the Vice Chancellor for Research (VCR). The charge of the committee was to provide advice and best practice recommendations for the research oversight functions of the Office of the VCR. Extensive interviews were conducted with the different research units across campus, and a final report with recommendations was submitted.

Academic Positions

1. Visiting Lecturer, Department of Mechanical and Aerospace Engineering, State University of New York at Buffalo (SUNY), Buffalo, NY, Jan. 1995 – Jun. 1995
2. Postdoctoral Fellow, Faculty of Mechanical Engineering, Technion-Israel Institute of Technology, Haifa, Israel, Aug. 1995 – Aug. 1997
3. Assistant Professor, Department of Mechanical and Industrial Engineering, University of Illinois at Urbana-Champaign (UIUC), Aug. 1999 – Aug. 2005
4. Visiting Associate Professor, Department of Mechanical and Manufacturing Engineering, University of Cyprus, Jun. 2005, Jul. 2006, Jan. 15 – May 31, 2008
5. Associate Professor with Tenure, Department of Mechanical Science and Engineering, UIUC, Aug. 2005 – Aug. 2008 (note the renaming of the department)
6. Professor, Department of Mechanical Science and Engineering, UIUC, Aug. 2008 – Nov. 2012
7. Research Professor, Frederick Seitz Materials Research Laboratory, UIUC, Jan. 2009 – Dec. 2014
8. Professor, Department of Mechanical Engineering, Khalifa University, Abu Dhabi, UAE, Nov. 2011 – Nov. 2012
9. Adjunct Professor, Department of Mechanical Science and Engineering, UIUC, Dec. 2012 – Dec. 2014
10. Professor, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University, Dec. 2012 – date

Named/Endowed Faculty Appointments

1. Kritzer Faculty Scholar, Department of Mechanical Science and Engineering, UIUC, 2003-2010
2. W. Grafton and Lillian B. Wilkins Professor, Department of Mechanical Science and Engineering, UIUC, 2011- 2012
3. Meinhard H. Kotzebue '14 Professor, J. Mike Walker ’66 Department of Mechanical Engineering, Texas A&M University, 2012 – 2020
4. James J. Cain '51 Chair in Mechanical Engineering, J. Mike Walker ’66 Department of Mechanical Engineering, Texas A&M University, 2016 – date

Other Professional Employment

1. Teaching Assistant, Department of Mechanical and Aerospace Engineering, State University of New York at Buffalo (SUNY), Buffalo, NY, Jan. 1990-May 1992; Jan. 1994-May 1994
2. Research Assistant, Department of Mechanical and Aerospace Engineering, State University of New York at Buffalo (SUNY), Buffalo, NY, Jan. 1991-May 1994
3. Laboratory Instructor, Millard Fillmore College (Evening Division of SUNY at Buffalo), Buffalo, NY, May 1991-Aug. 1992
4. Research Associate, Department of Mechanical and Aerospace Engineering, State University of New York at Buffalo (SUNY), Buffalo, NY, May 1994-Sep. 1995
5. Senior Engineer, Seagate Technology, Bloomington, MN, Aug. 1997-Feb. 1999
6. Staff Scientist, Seagate Technology, Bloomington, MN, Mar. 1999-Aug. 1999
7. Founding Partner, ATSP Innovations, Houston, TX, Oct. 2010-date

Service in External Boards

1. Board Member, ATSP Innovations, Houston, TX, Oct. 2010-date
2. Member, External Advisory Board, Department of Mechanical and Aerospace Engineering, SUNY at Buffalo, 2014-present
3. Chair, External Advisory Board, Department of Mechanical Engineering, University of Wisconsin Madison, 2014
4. Member, Executive Committee, Mechanical Engineering Department Heads Committee, ASME, 2013-2018
5. Vice-Chair (2016), Secretary (2015), Executive Committee, Mechanical Engineering Department Heads Committee, ASME
6. Chair, Executive Committee, Mechanical Engineering Department Heads Committee, ASME, 2017-2018
7. Member, External Advisory Board, Department of Mechanical Engineering, University of Florida, 2017
8. Chair, External Advisory Board, Department of Mechanical Engineering, University of Colorado, Boulder, Colorado, 2018
9. Executive Chairman of the Board, ATSP Innovations, Houston, TX, Oct. 2020-date

Consulting Activities (since 2005)

1. Ingersoll-Rand Company, Minneapolis, MN, 2003-2005
2. Balzers A.G., Balzers, Leinchteinstein, 2003-2005
3. U.S. Nonwovens Corp., New York, NY, 2006
4. Great Central Insurance Co., Peoria, IL, 2006-2009
5. Ohio State University, Columbus, OH, 2007
6. InvenTherm, LLC, Baton Rouge, LA, 2009-2010
7. Parker Hannifin Corp., 2009-2010

8. Rite-Hite Doors, Dubuque, IA, 2010-2012
9. Khalifa University of Science Technology and Research, 2011
10. Chemours, 2020-present
11. Expert Institute, 2021

Honors, Recognition, and Outstanding Achievements

Teaching/Pedagogical Impact

1. Listed in the Daily Illini "Incomplete List of Teachers Ranked as Excellent by Their Students" for Fall 2001, Spring 2005, and Fall 2005 (UIUC)
2. Edwin F. Church Medal, American Society of Mechanical Engineers (ASME), 2019

Research

1. Reviewer of the Year Award, ASME Journal of Tribology, 1997
2. Burt L. Newkirk Award, American Society of Mechanical Engineers (ASME), 2001
3. National Science Foundation Faculty CAREER Award, 2003
4. Xerox Award for Faculty Research, College of Engineering, UIUC, 2005, 2007
5. Edmond E. Bisson Award, Society of Tribologists and Lubrication Engineers (STLE), 2007
6. Fulbright Scholar, The J. William Fulbright Foreign Scholarship Board, Cyprus, 2007
7. K.L. Johnson Best Paper Award, Contact Mechanics Committee, Tribology Division, American Society of Mechanical Engineers (ASME), 2007
8. Walter D. Hodson Award, Society of Tribologists and Lubrication Engineers (STLE), 2008
9. Fellow, American Society of Mechanical Engineers (ASME), 2008
10. Provost Fellow, Committee on Institutional Cooperation, Academic Leadership Program (CIC ALP), 2011-2012
11. Fellow, Society of Tribologists and Lubrication Engineers (STLE), 2013
12. Mayo D. Hersey Award, ASME, 2018
13. Senior Member, National Academy of Inventors, 2022

Teaching

Served in dozens of **Ph.D. committees** in Mechanical Engineering, Aerospace Engineering, Materials Science and Engineering, Industrial Systems Engineering, Electrical and Computer Engineering, and Chemistry (not listed).

Classroom Teaching

Polycarpou taught courses at both the undergraduate and graduate levels, including a junior level system dynamics course, a senior level machine design course, a senior /grad level tribology course, and a graduate course in microtribodynamics. At Texas A&M, he co-developed and co-taught an entrepreneurship course. Polycarpou believes in strong engagement of the students in the classroom and beyond, and uses active learning techniques, experiential learning and project-based teaching methods.

Course Development

1. At Texas A&M and UIUC, developed a new introductory course in tribology (for senior undergraduate and graduate students)
2. At UIUC, developed a new advanced graduate course in microtribodynamics
3. Revamped the basic junior-level system dynamics course (at UIUC)
4. Revamped the senior level Design of Machine Components and Systems course (at Texas A&M and UIUC)

5. Co-developed and co-taught a senior-level undergraduate and graduate-level course on entrepreneurship related to nanomaterials for energy applications

Short Courses

1. Wear Related to Compressor Applications (Arcelik, Turkey), 2005
2. Introduction to Tribology (University of Cyprus), 2009
3. Nanomechanical Properties of Thin Solid Films (University of Cyprus), 2010

Design Teams (Capstone design teams)

Supervised/taught ten different capstone senior design projects in the general area of machine design, innovation and tribology (at UIUC)

Supervised dozens of design projects, either individual students or teams of students

Research, Creative, and Other Scholarly Activities

Polycarpou's research is in the interdisciplinary area of tribology, the science of interacting surfaces. Specifically, he has established an internationally renowned program in the fields of (a) micro/ nanotribology with application areas in magnetic storage devices and microelectromechanical systems, and (b) advanced materials and mechanics of thin films for tribology in air-conditioning & refrigeration compressors, automotive, oil & gas, and nuclear applications. Polycarpou has developed continuum-based contact, friction and adhesion models that include fundamental properties, as well as ultra-thin nanometer-scale film properties and roughness effects. He demonstrated that a coupled modeling approach (basic interfacial models coupled with dynamic system models) can successfully be used to predict dynamic friction. Polycarpou coined the word microtribodynamics, which is the "study of tribology (friction, adhesion, wear, and lubrication) and dynamic interaction in miniature systems." Some of the models developed by Polycarpou are implemented in the magnetic storage industry. Polycarpou has also made seminal contributions in the understanding of interfaces under extreme operating conditions. Specifically, he has advanced the field of extreme tribology, including developing new materials and coatings for use in oil-less machines, and operating under high pressures and temperatures.

Publications

(*) has undergone stringent editorial review by peers; (**) invited and carries with it prestige and recognition; (S) based on work as a student; (W) co-authored with students you supervise; (!) represents most important contribution of the past decade; (P) derived from PhD thesis; (D) co-authored with post-docs

Edited Books: Original Editions

1. (*) Bhatia, C. S., A. A. Polycarpou, and A. K. Menon, Trib-Vol. 9, Proceedings of the Symposium on Interface Tribology Towards 100 Gb/in2, ASME, 1999.
2. (*) Bhatia, C. S., A. A. Polycarpou, and A. K. Menon, Trib-Vol. 10, Proceedings of the Symposium on Interface Tribology Towards 100 Gb/in2 and Beyond, ASME, 2000.
3. (*) Polycarpou, A. A. and C. S. Bhatia, Trib-Vol. 11, Proceedings of the Symposium on Nanotribology and Nanotechnology for 1 Tb/in2, ASME, 2001.
4. (*) Polycarpou, A. A., M. Suk, Y.-T. Hsia, and C. S. Bhatia, Trib-Vol. 13, Proceedings of the Magnetic Storage Symposium on Frontiers of Magnetic Hard Disk Drive Tribology and Technology, ASME, 2002.
5. (*) Polycarpou, A. A., M. Suk, and Y.-T. Hsia, Trib.-Vol. 15, Proceedings of the Magnetic Storage Symposium on Frontiers of Magnetic Hard Disk Drive Tribology and Technology, ASME, 2003.

Chapters in Books

1. (*)(**)(S)(P) Polycarpou, A. A. and A. Soom, "Modeling Unsteady Lubricated Friction," Chapt. 6 in Dynamics with Friction: Modeling, Analysis and Experiment, A. Guran, F. Pfeiffer, and K. Popp, eds., World Scientific Publishing Co., 197-232, 1996.
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Articles in Conference Proceedings

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(*)(W) Rahman, M. S. and A. A. Polycarpou, "High Temperature Sliding Wear Behavior of Ni Alloys Under Helium Environment," Transactions of the American Nuclear Society, Vol. 117, Washington, D.C., October 29–November 2, pp. 634-637, 2017.

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(*)(W) Bashandeh, K., V. Tsigkis, P. Lan, and A.A. Polycarpou, "Dust Resilient Polymer-Based Bearing Coatings for Lunar and Mars Application," 53rd Lunar and Planetary Science Conference, 7-11 March, 2022 at The Woodlands, Texas, LPI Contribution No. 2678, id.1728, 2022.

(*)(W) Tsigkis, V, K. Bashandeh, P. Lan, and A.A. Polycarpou, "Tribological Investigation of High Temperature Coatings for Venusian Conditions" 53rd Lunar and Planetary Science Conference, 7-11 March, 2022 at The Woodlands, Texas, LPI Contribution No. 2678, id.2718, 2022.

(*) Srinivasa, A., R. Gao, M.C. Hipwell, D. Seets, A.A. Polycarpou, K. Watson, M. Bergman, "WIP: Incremental innovation training as a means for percolating faculty teaching culture change-A First Look," 2022 ASEE Annual Conference & Exposition, 2022.

(*) Srinivasa, A., A.A. Polycarpou, E. Edoga, M. Bergman, M.C. Hipwell, D. Seets, "WIP: Teams for Creating Opportunities for Revolutionizing the Preparation of Students (TCORPS) at the Department of Mechanical Engineering, Texas A&M University," 2022 ASEE Annual Conference & Exposition, 2022.

(*) Xu. W., D.A. McAdams, and A.A. Polycarpou, "Short Paper: An Initial Investigation of the Correlations Between the Quality of Engineering Assignments and Task-Independent Features," ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, 86243, 2022.

Invited Lectures

1. (**) "A Fundamental Static Friction Model Applicable to the Head Disk Interface and MEMS," Purdue University, West Lafayette, IN, Mar. 1999.
2. (**) "Microtribodynamics Studies in Miniature Systems," University of California, Berkeley, Berkeley, CA, Feb. 2001.

3. (**) “Microtribodynamic Studies in Miniature Systems: Approaches in Modeling Dynamic Friction,” State University of New York at Buffalo, Buffalo, NY, Apr. 2001.
4. (**) “Adhesion, Friction and Vibration Studies in Miniature Systems: Microtribodynamics,” University of Notre Dame, South Bend, IN, Nov. 2001.
5. (**) “Experimental, Analytical and Finite Element Studies to Investigate Sub 100 nm Thick Surface Layers,” University of Cyprus, Nicosia, Cyprus, Jun. 2002.
6. (**) “A Continuum-Based Adhesion Model and Experiments for Miniature Systems,” Carnegie Mellon University, Pittsburgh, PA, Oct. 2002.
7. (**) “Dynamic Friction and Adhesion Modeling and Experiments for Miniature Systems,” University of Florida, Gainesville, FL, Apr. 2003.
8. (**) “The Role of Adhesion in the Modeling of Miniature Dynamic Systems with Friction,” Purdue University, Lafayette, IN, Sep. 2003.
9. (**) “Using Micro and Nanoanalytical Techniques to Investigate ‘Macro’ Tribological Phenomena,” Northwestern University, Evanston, IL, Oct. 2003.
10. (**) “The Use of the Nanoscratch Technique as a Method of Measuring the Hardness of Thin Films: Theory and Experiments,” Universidade Federal de Uberlândia, Campus Santa Mônica, Uberlândia, Brazil, Jul. 19, 2004.
11. (**) “Advances and Critical Micro/nanotribological Issues of Magnetic Storage Hard Disk Drives Towards the Goals of 1 Terabit per Square Inch Recording Densities,” Ohio State University, Columbus, OH, Oct. 2004.
12. (**) “Characterization of Impact-induced Damage during Operational Shock in Magnetic Storage Hard Disc Drives,” University of Cyprus, Jul. 2005.
13. (**) “Advances and Critical Nanotribological Issues of Magnetic Storage Hard Disk Drives in Pursuing Tbit/in² Recording Densities,” Technion-Israel Institute of Technology, Jul. 2005.
14. (**) “Nanomechanical Property Measurements for Sub-10 nm Thick Films,” Texas A&M University, College Station, TX, Mar. 2006.
15. (**) “Adhesive Contact Modeling Including Roughness Effects,” University of California San Diego, San Diego, CA, Mar. 2006.
16. (**) “Nanomechanical Property Measurements for Sub-10 nm Thick Films using the Nanoindentation and Nanoscratch Techniques,” State University of New York at Buffalo, Buffalo, NY, Jun. 2006.
17. (**) “Adhesive Interactions in Miniature Systems including Roughness Effects: A Contact-mechanics Approach,” Gordon Research Conference on Tribology, Invited Talk, Waterville, Maine, Jun. 2006.
18. (**) “Nanotechnology Realization: The Tribology of Hard Disk Drives and Lessons to be Learned for Other Advanced Engineering Devices,” Invited Dinner Talk, ACRC Industrial Advisory Board Meeting, Urbana, IL, Oct. 2006.
19. (**) “Nanometer to Micrometer Thick Protective Surface Coatings: Mechanical Properties and Tribological Performance,” University of Cyprus, Nicosia, Cyprus, Nov. 2006.
20. (**) “Measurement and Modeling of Adhesion Energy Between Two Rough MEMS Surfaces,” Georgia Institute of Technology, Atlanta, GA, Mar. 2007.
21. (**) “Overview of Tribological Research Activities at UIUC, Argonne National Laboratory, Argonne, IL, Sep. 2007.
22. (**) "Tribology of Carbon Dioxide (CO2) as an Environmentally Friendly Refrigerant," University of Cyprus, Jan. 2008.
23. (**) “Nanomechanical Property Measurements for Sub-10 nm Thick Solid Films with Application in Magnetic Storage,” University of Cambridge, Cambridge, UK, May 2008.

24. (**) "Recent Advances in Air-Conditioning Compressors with Emphasis on the Tribology of Carbon Dioxide Refrigerant," Near East University, Cyprus, Jun. 2008.
25. (**) "Tribological Advances and Challenges of Magnetic Storage Hard Disk Drives and Microelectromechanical Systems," Nanyang Technological University, Singapore, Jan. 2009.
26. (**) "Tribological Advances and Challenges of Magnetic Storage Hard Disk Drives," A* STAR/Data Storage Institute, Singapore, Jan. 2009.
27. "Some Dynamics Issues in Modern Hard Disk Drives Towards 10 Tbit/in2 Storage Density," California Institute of Technology, Pasadena, CA, Aug. 2009.
28. (**) "Dynamic Impact and Quasi-static Contact and Scratch Analysis of Micro/ Nanoscale Thin Solid Films," University of Wisconsin Milwaukee (Distinguished College of Engineering and Applied Science Lecture), WI, Nov. 2009.
29. (**) "Physics of Mechanical Joints Accounting for Partial Slip: A Computational and Experimental Multiscale Approach," University of Cyprus (Joint Mechanical and Civil Eng Seminar), Nov. 2009.
30. (**) "Dynamic Impact and Quasi-static Contact and Scratch Analysis of Micro/ Nanoscale Thin Solid Films," University of Texas at Austin, Mar. 2010.
31. (**) "Tribological Research Towards Environmentally Friendly Air-Conditioning and Refrigeration Compressors," STLE/ASME International Joint Tribology Conference, San Francisco, CA, Oct. 2010.
32. (**) "Dynamic Impact and Sliding Contact of Micro/Nanoscale Systems," Carnegie Melon University, Oct. 2010.
33. (**) "Tribological Materials Research towards Environmentally Friendly Air-Conditioning and Refrigeration Compressors," Khalifa University, Dec. 2010.
34. (**) "Dynamic Impact and Sliding Contact of Micro/Nanoscale Systems," Worcester Polytechnic Institute, Feb. 2011.
35. (**) "Dynamic Impact of Micro/Nanoscale Systems," University of New Mexico, Mar. 2011.
36. (**) "Some Interface Problems from the Nano to the Macro Scales," Texas A&M University, Jun. 2012.
37. (**) "Dynamic Impact and Sliding Contact of Micro/Nanoscale Systems." Korean Institute of Science and Technology, Jun. 2012.
38. (**) "Tribological Advances and Challenges of Magnetic Storage Hard Disk Drives," University of Cyprus and Cyprus National Science Foundation, Jul. 2012.
39. (**) "Micromechanical and Tribological Performance of Advanced Polymeric Coatings," State University of New York at Buffalo, Apr. 2014.
40. (**) "Advanced Sliding Contact Interactions in Micro/Nanoscale Systems," Pennsylvania State University, Oct. 2014.
41. (**) "Educating the Future Engineer; Advanced Sliding Contact Interactions in Micro/Nanoscale Systems," Mississippi State University (Inaugural Distinguished Lecture in Mechanical Engineering), Oct. 2014.
42. (**) "Educating the Future Engineer; Advanced Sliding Contact Interactions in Micro/Nanoscale Systems," Iowa State University, Sep. 2015.
43. (**) "Plenary: Advanced Materials and Coating Systems for Oil & Gas Applications," International Workshop on Computational Methods with Application to Oil and Gas, Feb. 2016, Doha, Qatar.
44. (**) "Tribology of Thin Films for Next Generation Material Systems Including Extreme High Temperature Conditions," University of Michigan, Oct. 2016.
45. (**) "Nanomechanics of Polymer Nanocomposite Films," University of Pennsylvania, Nov. 2016.

46. "Tribology of Thin Films for Next Generation Material Systems Including Extreme High Temperature Conditions," Texas A&M University at Qatar, Mar. 2017.
47. (**) Nanomechanics of Ni-Alloys and Ultra-Thin Films Including High Temperature," Workshop on Contact Mechanics, Rice University, May 2017.
48. (**) "Advanced Sliding Contact Interactions in Micro/Nanoscale Systems," University of Houston (Distinguished College of Engineering seminar), Oct. 2017.
49. (**) "Materials for Extreme Conditions for Reduced Friction and Wear," Workshop on Material Selection, Reliability and Corrosion-Challenges and Opportunities, Doha, Qatar, March 2018.
50. (**) "Advanced Sliding Contacts in Micro/Nanoscale Systems," Byron Lecture, University of Texas at Austin, April 2018.
51. (**) "Micro/nano Mechanics and Nanotribology of Flexible Multilayer Nanocomposites," University of Texas at Dallas, September 2018.
52. (**) "Engineering Polymers," IV Symposium on Polymeric Materials, University of Autónoma de Occidente - Cali, Colombia, September 2018.
53. (**) "Micro/nano Mechanics and Nanotribology of Flexible Multilayer Nanocomposites," University of Notre Dame, October 2018
54. (**) "Advanced Sliding Contacts in Micro/Nanoscale Systems," University of California San Diego, November 2018.
55. (**) "Micro/nano Mechanics and Nanotribology of Flexible Multilayer Nanocomposites," Missouri University of Science and Technology, February 2019.
56. (**) "High Temperature Tribological Performance of Ni Alloys Under Helium Environment for Very High Temperature Gas Cooled Reactors," The French Alternative Energies and Atomic Energy Commission (CEA) Cadarache, France, July 2019.
57. (**) "Fabrication and Micromechanics of Flexible Three-Dimensional Structures," Rice University, September 2019.
58. (**) "Fabrication and Micromechanics of Flexible Three-Dimensional Structures," Texas A&M University, September 2019.

Patents

United States Patents

1. Gui, J., B. J. Marchon, D. P. Burbank, J. W. Hoehn, J. K. Berkowitz, R. Sundaram, J. L. Brand, S. Nagarajan, D. W. Meyer, P. R. Segar, A. A. Polycarpou, Z. E. Boutaghou, D. E., Egbert, D. G., Wobbe, M. C. Hipwell, and H. Tang, "Slider Having Air Bearing Surface which Includes Pads for Disk Storage System," United States Patent 6,212,042, Apr. 3, 2001.
2. Boutaghou, Z. E., M. J. Schaenzer, W. O. Liners, J. W. Hoehn, and A. A. Polycarpou, "Burnishing Head with Fly Height Control Spacer," United States Patent 6,296,552 Oct. 2, 2001.
3. Boutaghou, Z. E., J. V. Hanchi, A. A. Polycarpou, T. R. Pitchford, and A. P. Sannino, "Enhanced Durability Ultra-Low-Flying-Height Sliders," United States Patent 6,304,418 Oct. 16, 2001.
4. Boutaghou, Z. E., J. V. Hanchi, A. A. Polycarpou, T. R. Pitchford, and A. P. Sannino, "Enhanced Durability Ultra-Low-Flying-Height Sliders," United States Patent 6,392,842 May 21, 2002.
5. Polycarpou, A. A., Z. E. Boutaghou, J. V. Hanchi, P. R. Segar, D. G. Wobbe, and M. C. Hipwell, "Slider for Data Storage Device with Head Disk Interface for Contact Starts and Stops ("CSS")," United States Patent 6,466,410, Oct. 15, 2002.

6. Hipwell, M. C., A. A. Polycarpou, and Z. E. Boutaghou, "Edge Contact Protection Feature for Disk Drive Head," United States Patent 6,483,668, Nov. 19, 2002.
7. Polycarpou, A. A., M. C. Hipwell, and Z. E. Boutaghou, "Edge Structure for Slider-Disc Interface and Method of Manufacture Therefore," United States Patent 6,542,334, Apr. 1, 2003.
8. Polycarpou, A. A., Z. E. Boutaghou, D. P. Burbank, J. Gui, J. V. Hanchi, L. E. Stover, and S. E. Ryun, "Slider for Disc Storage System," United States Patent 6,603,639, Aug. 5, 2003.
9. Polycarpou, A. A., Z. E. Boutaghou, and D. P. Burbank; "Texture Structure for Optimizing Head Disc Interface," United States Patent 6,611,400, Aug. 26, 2003.
10. Boutaghou, Z. E., J. V. Hanchi, A. A. Polycarpou, T. R. Pitchford, and A. P. Sannino, "Method for Constructing an Ultra-Low-Flying-Height Slider," United States Patent 6,647,612, Nov. 18, 2003.
11. Polycarpou, A. A., D. G. Wobbe, and Z. E. Boutaghou, "Disk Drive Having a Suspension Limiter for Improved Shock Performance," United States Patent 6,714,386, Mar. 30, 2004.
12. Economy, J., A. A. Polycarpou, and J. Meyer, "Polymer Coating System for Improved Tribological Performance," United States Patent, 9,534,138, Jan. 3, 2017.
13. Lan, P., A. A. Polycarpou, and J. L. Meyer, "Surface Texturing for Advanced Polymers," United States Patent Application Publication 2020/0147840 A1, May 14, 2020.
14. Gheisari, R. and A. A. Polycarpou, "Phase Change Material Compositions and Methods for Their Use to Lower Surface Friction and Wear," United States Patent 11,225,626, January 18, 2022.
15. Polycarpou, A. A., M. S. Rahman, and P. Lan, "Fluid Sealing of Moving Shafts for High Pressure Chambers," U.S. Provisional Patent Application No. 17/743,782; Publication date November 17, 2022.
16. Amiri, A., K. Bashandeh, M. Naraghi, and A. A. Polycarpou, "Supercapacitors with Cobalt Tetraoxide-coated Nanofiber Yarn Electrodes," U.S. Provisional Patent Application Serial No. 63/244,637; filed on Sep 15, 2021.
17. Amiri, A., and A. A. Polycarpou, "Structural Zinc-ion Hybrid Supercapacitor," U.S. Provisional Patent Application Serial No. 63/256,414; filed on Oct 15, 2021.
18. Polycarpou, A.A., L. Vaught, V. Tsigki, K. Bashandeh, P. Lan, M.S. Rahman, "Rapid Cooling, Temperature-Insensitive Cryogenic Test Chamber Allowing for Relative Motion," Invention Disclosure in process, December 31, 2021.
19. Amiri, A., A.A. Polycarpou, K. Bashandeh, M.S. Rahman, "MXene-aromatic thermosetting copolyester biocompatible implant material nanocomposite," Invention Disclosure in process, January 2, 2022.
20. Amiri, A., L. Vaught, A.A. Polycarpou, "Process for fabricating zinc ion Hybrid supercapacitors and hybridized zinc-ion supercapacitor-zinc sulfur battery," Invention Disclosure in process, May, 2022.

International Patents

1. Gui, J., B. J. Marchon, D. P. Burbank, J. W. Hoehn, J. K. Berkowitz, R. Sundram, J. L. Brand, S. Nagarajan, D. W. Meyer, P.R. Segar, A. A. Polycarpou, Z.-E. Boutaghou, D. E. Egbart, D. Wobbe, M. C. Hipwell, and H. Tang, "Slider for Disk Storage System," World Intellectual Property Organization, PCT Number WO 99/00792, issued on January 7, 1999.
2. Gui, J., P. R. Segar, B. Marchon, D. P. Burbank, J. W. Hoehn, J. K. Berkowitz, R. Sundram, J. L. Brand, S. Nagarajan, D. W. Meyer, A. A. Polycarpou, Z.-E. Boutaghou, D. E. Egbart, D. Wobbe, M. C. Hipwell, and H. Tang, "Slider for Disk Storage

System," United Kingdom Patent Application, GB 2342 764 A, issued on April 19, 2000.
3. Hipwell, M. C., A. A. Polycarpou, and Z. E. Boutaghou, "Edge Contact Protection Feature for Disk Drive Head," World Intellectual Property Organization, PCT Number WO 00/43992; issued on July 27, 2000.
4. Hipwell, M. C., A. A. Polycarpou, and Z.-E. Boutaghou, "Edge Contact Protection Feature for a Disc Drive Head," United Kingdom Patent Application GB 2362 750 A, November 28, 2001.
5. Gui, J., B. J. Marchon, D. P. Burbank, J. W. Hoehn, J. K. Berkowitz, R. Sundaram, J. L. Brand, S. Nagarajan, D. W. Meyer, P. R. Segar, A. A. Polycarpou, Z. E. Boutaghou, D. E., Egbert, D. G., Wobbe, M. C. Hipwell, and H. Tang, "Slider Having Air Bearing Surface which Includes Pads for Disk Storage System," United Kingdom Patent Application GB 2366 657 A, issued on March 13, 2002.
6. Polycarpou, Andreas A., D. P. Burbank, B. W. Karr, Z.-E. Boutaghou, "A Recording Slider for Improved Tribological Performance," United Kingdom Patent Application GB 2372 141 A, issued on August 14, 2002.

Magazine Articles

1. Polycarpou, A. A., "Technical Note: The Quest for Higher Area Density Magnetic Recording," ASME Tribology Newsletter, 4, Summer 2001.
2. Featured in "Hard-Driving Lubrication," STLE Tribology & Lubrication Technology, 60:11, 30-38, 2004.
3. Hernandez, F. C. R., N. G. Demas, K. Gonzales, and A. A. Polycarpou, "Novel Laboratory Wear Performance Test for Premium Rails," Railway Track & Structures, 103:2, 17-19, Feb. 2007.
4. Featured in "20 Minutes with Dr. Andreas Polycarpou," STLE Tribology & Lubrication Technology, 14-22, May 2007.
5. Escobar, E. N., N. G. Demas, K., Polychronopoulou, and A. A. Polycarpou, "Tribological Study Comparing PAG and POE Lubricants Used in Air-Conditioning Compressors Under the Presence of CO2," Editors' Choice Peer-Reviewed Paper, STLE Tribology & Lubrication Technology, 34-41, Apr. 2009.
6. "Tribology Makes the World Go Around," Featured in ASME main website, Oct. 2011.
7. (W) Vakis, A.I., and A.A. Polycarpou, "Dynamic Adhesive Contact with Molecularly Thin Lubricant at the Head-Disk Interface of Hard Disk Drives," Student Poster Award, STLE Tribology & Lubrication Technology, 2-4, Mar. 2012.
8. "Tiny Pop-up Devices Work Relentlessly Even Under Extreme Pressure," News release in several scientific venues, including AAAS and EurekAlert (May 14, 2020), News Break (May 14, 2020), ScienceDaily (May 15, 2020), Jd Social (May 16, 2020), TechXplore (May 17, 2020).

Grants, Contracts, and Gifts

For Research

Inclusive Years	Brief Title or Description	Source of Funds	#PIs and lead if not this prof
96	Static Friction Sub-Boundary Lubrication Model	Research Fund	2/I. Etsion
96 – 97	Modeling of Static C-Seals	EG&G	2/I. Etsion
00 – 01	Tribology Related to Compressors	Copeland Corp.	1

Inclusive Years	Brief Title or Description	Source of Funds	#PIs and lead if not this prof
00 – 01	Friction and Vibration Modeling for Ultra Low Fly-Height Head Disk Interfaces (100 Tbit/In^2)	INSIC	1
00 – 02	Fundamental Investigation of Tribological Failure Mechanisms of Compressor Surfaces	ACRC* #127	2
01 – 02	Dynamic Microcontact Stiffness and Damping Modeling and Experiments on Miniature Systems	Research Board	1
01 – 03	Tribological Studies on Scuffing Due to the Influence of CO_2 Used as a Refrigerant in Compressors	ACRC* #133	2/T.F. Conry
01 – 04	Linking Rail Surface Yield Strength, Microstructure and Wear	Transportation Tech. Center/ Assoc. of American Railr.	2/H. Sehitoglu
02 – 03	Friction and Vibration Interaction for the Head Disk Interface (1Tb/in^2)	INSIC	1
02 – 03	Feasibility Study of Novel Instrumentation with nN Force Resolution	NSF	1
02	Mechanical Properties of MicroWires Used in Cardiac Devices	Guidant Corporation	2/A. Wagoner-Johnson
02 – 03	Novel Instrumentation for Picotribological Studies	C.J. Gauthier Prog for Explor Studies	1
02 – 04	Equipment Grant for Ultra High Pressure Tribometer for CO_2 Refrigerant	Herrick Foundation	1
02 – 04	Tribological Studies with CO_2	ACRC* #146	2
03	Swash Plate Tribological Study	Daimler-Chrysler	1
03 – date	Tribological Testing of Coating Materials Under High Temperature Conditions	Balzers AG	1
03 – 04	Compressor Tribology	Kritzer Endowment	1
03 – 06	Tripot Constant Velocity (CV) Joint Internal Friction Characterization	Delphi Saginaw Steering Systems	1
03 – 08	CAREER: Dynamic Contact Modeling and Experiments on Miniature Systems	NSF	1
04	Tribological Investigation of Reciprocating Compressors	Arcelik	1
04	Dry Sliding Oil Pump Tests using the High Pressure Tribometer	Ingersoll-Rand Company	1
04 – 06	Optimized Surfaces for Low Adhesion Forces	INSIC	1

Inclusive Years	Brief Title or Description	Source of Funds	#PIs and lead if not this prof
04 – 07	Numerical Analysis for the Characterization of Impact-Induced Damage During Operational Shock	Seagate Technology	1
04 – 06	Head-Disk Interface for Hard-Disk Drive Areal Data Density of 1 Terabit per Square Inch	NSF	1
04 – 05	Tribology of Coatings for Oil-Less Compressors	ACRC* #171	1
05 – 06	Linking Wear Performance, Mechanical Behavior and Microstructure in Rails Steels	Transport Techn Assoc Amer Rail	2/Sehitoglu
06	Tribology of Landing Gear Components	Goodrich Landing Gear	1
06 – 07	Controlled Tribological Experiments Up to 2000 psi in a CO_2 Atmosphere	ACRC* #198	1
06 – 07	Tribology of Protected/Coated Surfaces for Oil-Less Compressors	ACRC* #219	1
06 – 07	Microtribodynamics for 1 Tbit/in^2: Experimental measurement of HDI adhesion and nanomechanical properties	INSIC	1
07	Reversible Solid Adhesion for Defense Applications	DARPA	1
07 – 08	Modeling of Sliding Scratch at Head-Disk Interfaces	Samsung Information Systems America	1
07	Sphericity and Roughness of Precision Bicycle Bearings	Fast Speed Ahead	1
07 – 08	Contact Mechanics Analysis Including Roughness of Patterned Media for 1 Tbit/in^2 and Beyond	INSIC	1
07 – 08	Wear and Scuffing of Compressor Surfaces in Environmentally Friendly Refrigerants and Correlation with Actual Compressor Data	ACRC* #226	1
07 – 09	IREE: CAREER: Dynamic Contact Modeling and Experiments on Miniature Systems	NSF	1
07 – 09	IMPACT Center for the Advancement of MEMS/NEMS VLSI (Interfacial Surface Characterization of Metal-to-Metal Contacting Switches for RF MEMS Applications)	DARPA	17/Cangellaris
07 – 10	Accounting for Lube and Wear in the Head Disk Interface	Seagate Technology	1
08 – 09	Testing of Materials and Coatings Relevant to Landing Gear Applications	Goodrich Landing Gear	1

Inclusive Years	Brief Title or Description	Source of Funds	#PIs and lead if not this prof
08 – 10	Tribology of Advanced Material Systems for Compressor Applications	ACRC* #242	1
08 – 09	Tribological Testing of Materials and Coatings Relevant to Compressor Applications	Delphi Thermal Systems	1
08 – 09	Wear/Scuffing Performance of Lubricant/R-410A Refrigerant Pairs on G-2 Gray Cast Iron using a High Pressure Tribometer	Chemtura	1
08 – 09	Improved Contact Mechanics-based Dynamic Models and Experiments for 10 Tbit/in^2	INSIC	1
08 – 11	A Computational/ Experimental Multiscale Approach to the Analysis of Structures Containing Mechanical Joints	NSF	3/Masud
09 – 10	Wear and Scuffing Performance of Materials	Honeywell	1
09 – 10	Tribology of Coated and Repaired Surfaces	Goodrich Landing Gear	1
09 – 11	Tribological Study (Including Lubricity) of Compressor Surfaces in the Presence of Environmentally Friendly Refrigerants HFO-1234yf and CO_2	ACRC* #252	1
09 – 12	MRI: Acquisition of Advanced Nanomechanics Instruments for Nanomechanical, Biomechanics and Nanotribological Experiments	NSF	4
10 to 11	Development of Coatings for Use in High Speed Applications	Parker Hannifin Corp.	1
10 – 12	Tribology of Advanced Coating Materials for Oil-less Compressors	ACRC* #269	1
10 – 12	High Pressure Tribometer Testing	Emerson Climate Techn., Inc.	1
10 – 12	Nanoscale Modeling and Optimization of Hard Disk Drive Design with Experimental Validation for Ultrahigh Recording Densities	Research Promotion Foundation (Cyprus)	2/Hadjicostis(U. of Cyprus)
10 – 14	Synthesis and Tribological Behavior of Metal Diboride-nitride Coatings: Optimizing the Hard and Compliant Response	NSF	2
11 – 12	Enhanced ISBL Contact Model for the Analysis of Friction and Wear Performance of Near-Zero Clearance	Seagate Technology	1
11 – 14	Tribological Studies of Compressor Surfaces in the Presence of	ACRC # 287	1

Inclusive Years	Brief Title or Description	Source of Funds	#PIs and lead if not this prof
	Environmentally Friendly Refrigerants HFO-1234yf and HC		
12	Friction Control Using Top of Rail Lubrication	Amer Assoc Rail, Tech Scanning	1
13 – 14	Improved Sub-Boundary Lubrication model	Seagate Technology	1
14 – 15	Design and Implementation of Novel In Situ Techniques for Studies of Advanced Functional Materials for Energy Applications	TEES/Texas A&M	3/Wang
14 – 15	Acquisition of a Triboindenter for the Materials Characterization Facility	Texas A&M	6
14 – 18	Advanced Materials for Preventing Tribological Failures in Submersible Pumps and Other Turbomachinery	Turbomachinery Lab/Texas A&M	1
15	Tribology of Materials for a Newly Developed Environmentally Friendly Refrigerant	UTRC	1
15 – 16	Friction of Advanced Coatings and Materials for the Valve Applications	Cameron	1
15 – 19	Experimental and FEA of Particle-scratch Induced Magnetic Storage Media Storage	Seagate Technology	1
15 – 19	Tribology (Stribeck Curve) Analysis of Drilling Fluid Used in Oil and Gas Field	ExxonMobil Chemical	1
15 – 19	Wear of Advanced Materials and Lubricants for Compressor and Other Applications	Trane	1
16 – 19	High Temperature Tribological Performance of Ni Alloys Under Helium Environment for Very High Temperature Gas Cooled Reactors (VHTRs)	DOE NEUP	3/Polycarpou
18-20	Mastering Friction to Reduce Current and Future Energy Demands	X-Grant (TAMU)	13/Batteas
19-20	Investigation of Tribology Performance in Water-based Friction Reducing Technologies	ExxonMobil Research & Eng. Company	1
19-20	Polymeric Encapsulation of Phase Change Materials for Tribological Applications	Strategic Transf. Res. Program (TAMU)	2/Polycarpou
19-22	SBIR Phases I, II: Extreme Environment Tribological Characterization of Advanced Materials	NASA/ATSP Innovations	1
20-21	Wear of Advanced Materials and Lubricants for Compressor and Other Applications	Trane	1

Inclusive Years	Brief Title or Description	Source of Funds	#PIs and lead if not this prof
2021	SBIR Phase I: Surface Micro-texturing of Advanced Bearing Materials for Lunar Dust Mitigation	NASA/ATSP Innovations	1
2021	SBIR Phase I: Phase Change Lubricant for Superlubricity of Sliding Contacts in Extreme Space Environment	NASA/ATSP Innovations	1
2021	STTR Phase I: High-performance Zinc-ion Hybrid MEMS Supercapacitors with High Energy Density	Dep. of Defense/ ATSP Innovations	1
2022-23	Tribology of advanced materials and coatings under environmentally friendly refrigerants for scroll compressors	Sanden	1
2022-25	Unravel processing-mechanics relations in Vitrimer composites with thermally-driven bond exchanges via molecular engineering	Air Force of Scientific Research	2/Naraghi

For instruction

Inclusive Years	Brief Title or Description	Source of Funds	#PIs and lead if not this prof
00 to 01	Center of Educational Technologies	UIUC	1
01	Collins Scholar	UIUC	1
20-23	IUSE/PFE:RED A&I: Soft Wired Teaming for Creating Opportunities to Revolutionize the Preparation of Students (TCORPS) through Building, Testing and Sharing Pedagogical Improvements	NSF	5/Polycarpou

Areas of Research *(brief description, key words are adequate)*

Tribology; microtribodynamics; nanotechnology; nanomechanics; coatings; magnetic storage; advanced materials for oil&gas; environmental/green tribology

Graduate Thesis Research Advising *(list co-advisor, if any)*

M.S. Students *(name and year granted or anticipated)*

Student Name	Year	Thesis Title	Placement
1. K. A. Vernagus	2001	Non-thesis option	Caterpillar, Inc.
2. J. J. Patel (T. Conry, co-advisor)	2001	Investigation of the Scuffing Mechanism under Starved Lubrication Conditions using Macro, Meso, Micro, and Nano Analytical Techniques	Emirates National Bank Dubai
3. S. R. Pergande (T. Conry, co-advisor)	2001	Use of Nano-Indentation and Nano-Scratch Techniques to Investigate Near Surface Material Properties Associated with Scuffing of Engineering Surfaces	CCC Information Services

Student Name	Year	Thesis Title	Placement
4. K-M. Lee	2002	Head-Disk Contact Vibration Diagnostics and Dynamic Microwaviness in Hard Disk Drives	Apple
5. A. Y. Suh	2002	Use of Detailed Surface Roughness Characterization Techniques to Describe the Surface Topography from Nano to Macro Applications	Apple
6. N. Yu (T. Conry, co-advisor)	2002	Experimental, Analytical and Finite Element Studies of the Nanoindentation Technique to Investigate Material Properties of Surface Layers Less than 100 Nanometers Thick	Biogen
7. N. G. Demas (T. Conry, co-advisor)	2003	Tribological Studies on Scuffing due to the Influence of Carbon Dioxide used as a Refrigerant in Compressors	Argonne National Lab
8. M. L. Cannaday	2004	Tribology of Unfilled and Filled Polymeric Surfaces in Refrigerant Environment for Compressor Applications	--
9. N. Tayebi (ECE)	2004	Reducing the Effects of Adhesion and Friction in Microelectromechanical Systems Through Surface Roughening: Theory and Experiments	Intel & Angel Investor
10. N. Tayebi (GE) (T. Conry, co-advisor)	2004	The Determination of Hardness of Thin Films Using the Nanoscratch Technique: Theory and Experiments	Intel & Angel Investor
11. J. L. Knight	2006	Extraction of Detailed Roughness Parameters from Magnetic Storage Samples and their Usage to Predict Minute Surface Differences	IBM Consulting
12. T. A. Solzak	2006	Tribology of Protective Hard Coatings for Oil-less Compressors	Cummins, Inc.
13. T. Schlack	2006	Investigation of Dynamic Friction under Harmonic and Impact Excitation at Rough Planar Contacts	Caterpillar, Inc.
14. E. Gertner	2007	Nanomechanical Properties of Bonded Composite Dental Restorations	Caterpillar, Inc.
15. A. I. Vakis	2008	Two-dimensional Biomechanical Analysis of the Extremely Fast Strikes of Trap-jaw Ant Mandibles	U of Groningen
16. D. Dascalescu	2008	Tribology of PTFE-based Coatings in Carbon Dioxide Environment	Siemens
17. T. Ozkan (I. Chasiotis, co-advisor)	2009	Nanomechanical Behavior of Nanocomposite Materials	Dover Precision Comp.

Student Name	Year	Thesis Title	Placement
18. S.-M. Yeo (S.I. Tseregounis, co-advisor)	2009	Contact Surface Analysis of RF MEMS Switches to Investigate Performance Deterioration and Adhesion Failures with Cycling	Shell
19. S. Chandrasekar	2011	Finite Element Based Modeling of Multi-Asperity Contact and Validation of Greenwood –Williamson Model	Ph.D. Candidate
20. S.P. Mishra	2011	Tribological Studies of Surface Texturing for Application in Air-Conditioning and Refrigeration Compressors	Intel
21. S. Chowdhury	2013	Molecularly Thin Rheological and Contact Interfaces	Trane
22. M. Ghamary	2017	Comparison of Friction Reduction & Wear Preventive Properties of Soluble and Insoluble Additives in Drilling Mud	ExxonMobil Chemical
23. J.H. Phadhi	2018	Minimizing Energy Consumption and Downtime in Oil and Gas Drilling Exploration through Tribology	Schlumberger
24. K. Bashandeh	2020	Mechanics and Deformation of Polymer Kirigami Structures	ATSP Innovations
25. Ronald Sellers	2024 (anticipated)	Advanced polymer composites for bio-applications	

Ph.D. Students *(name and year granted or anticipated)*

Student Name	Year	Thesis Title	Placement
1. S-C. Lee	2004	Microtribodynamics of Sub-10nm Flying Head-Disk Interfaces in Magnetic Storage	Apple
2. X. Shi	2005	Fundamental Modeling and Experimental Investigation of Dynamic Friction at the Meso and Micro Scales	Shanghai Jiao Tong U, China
3. N. Yu	2005	Nanotribology and Nanomechanics including Nanomechanical Properties, Adhesion and Surface Roughness with Application to Magnetic Storage Hard Disk Drives	Biogen
4. A. Y. Suh	2005	Improved Modeling of Adhesion and Friction in Sub-5 NM Ultra-low Flying-Contacting Magnetic Storage Head-Disk Interfaces	Apple
5. K. M. Lee	2006	Nanomechanical Properties and Nanowear Characterization of Thin Solid Films and Engineering Surfaces	Apple

Student Name	Year	Thesis Title	Placement
6. C. H. Lee	2006	Dynamic Friction Characterization of Tripod Constant Velocity (CV) Joints: Experiments, Analysis and Modeling	Inha University, Korea
7. X. Xue	2007	Theoretical and Experimental Investigation of Adhesion in MEMS	Analogue Devices Inc.
8. N. G. Demas	2008	Tribology of Carbon Dioxide Including Instrumentation for Testing at Extreme Pressures and Characterization of Advanced Protective Tribological Materials	Argonne National Laboratory
9. C.-D. Yeo	2008	Rough Surface Interactions at Micro/Nano-Scale Contact Systems	Texas Tech University
10. R. R. Katta	2009	Dynamic and Quasi-static Contact and Scratch Analysis of Micro-Nanoscale Thin Solid Films with Application to Magnetic Storage Hard Disk Drives	Intel
11. E. N. Escobar	2010	Scuffing and Wear of Engineering Materials under Different Lubrication Regimes in the Presence of Environmentally Friendly Refrigerants	Univ. Autónoma de Occidente (Colombia)
12. A.I. Vakis	2011	Nanoscale Interface Mechanics with Application to Magnetic Storage	University of Gronighen (Netherlands)
13. M. Eriten (L. Bergman, co-advisor)	2011	Multiscale Physics-based Modeling of Friction	University of Wisconsin, Madison
14. J.K. Lee	2012	Tribological Studies of Micro/Nano Scale Thin Solid Films	Bruker
15. N. Karanjgaokar (I. Chasiotis, co-advisor)	2012	Nanomechanical Behavior of Thin Films	Worcester Polytechnic Institute
16. S.M. Yeo	2012	Tribology of Polymeric Coatings for Aggressive Bearing Applications	Shell
17. M.W. Akram	2014	Tribology of Engineering and Coated Materials in the Presence of Environmentally Friendly Refrigerant	Trane
18. S. Kim (H. Linag co-advisor)	2015	Surface Properties of Nanopore Structured Metals and Oxides	Chung-Ang University (Korea)
19. Y. Zhang	2017	Nanotribology and Nanomechanics of Thin Films Including Material Characterization, Mechanical Wear, Adhesion and Lubrication	Apple

Student Name	Year	Thesis Title	Placement
20. P. Lan	2017	Tribological Performance of Advanced Polymeric Coatings Under Extreme Operating Conditions	Timken
21. M. Humood	2018	Nanomechanics, Nanotribology and Fabrication of Flexible Multilayer Nanocomposites	Intel
22. R. Gheisari	2019	Macro and Microtribology of Polymers and Hard Coatings and Their Interaction with Additives	Apple
23. Y. Zheng	2020	Tribological Studies of Water-based Mud and Self-welding Behavior	Applied Materials
24. M.S. Rahman	2021	High Temperature Tribology Performance of Nickel Alloys under Helium Atmosphere	ATSP Innovations
25. A.S. Shakil	2021	Nanomechanics, Nanotribology and Surface Interactions of Ultra-Thin Films	Intel
26. K. Bashandeh	2022	Tribology of High-Performance Polymers at Extreme Conditions from Cryogenic to Elevated Temperatures	ATSP Innovations
27. A. Amiri	2022	Multifunctional Energy Storage Devices: Charging up the Future Technologies	Texas A&M
28. A. Asif	2023 (anticipated)	Environmentally friendly lubrication including aqueous systems	
29. V. Tsigkis	2023 (anticipated)	Tribology for Space Applications	
30. L. Vaught	2024 (anticipated)	Additive Manufacturing of High-performance Polymers	
31. A. Raut	2024 (anticipated)	Advanced high bearing polymer solutions for compressors	

Post-Doctoral Associates and Visiting Scientists (>3 months stay)

Name	Title	Country of Origin	Permanent Employer	Years
Tomoki Harano	Associate Professor	Japan	Anan National College of Technology	03/06 to 02/07
Kyriaki Polychronopoulou	Fulbright Visiting Scholar	Cyprus	Khalifa University, UAE, Professor	01/07 to 05/07
José Daniel Biasoli de Mello	Fulbright Visiting Scholar	Brazil	Universidade Federal de Uberlândia	02/07 to 06/07
Diana Lopez	Associate Professor	Colombia	Universidad Nacional de Colombia Sede Medellín	08/01-12/31/2011
Tanil Ozkan	Visiting Assistant Prof.	USA	Dover Precision Comp.	2/1/14-1/15/15

Name	Title	Country of Origin	Permanent Employer	Years
Ali Beheshti	Assistant Professor	USA	George Mason University	9/1/14-8/31/15
Ahmad Amiri	Research Assistant Prof.	USA	Texas A&M	9/1/22-date

Editorships of Journals or Other Learned Publications (list year)

1. Guest Editor, ASME Journal of Tribology, Jan.2005-Jul. 2005
2. Associate Editor, ASME Journal of Tribology, Aug. 2005-2012
3. Editorial Board, Review of Scientific Instruments, Jan. 2006-Jan. 2009
4. Editorial Board, Microsystem Technologies, Mar. 2006-date

Other Scholarly Activities *(conferences organized or chaired, unpublished presentations, etc.)*

Conferences Organized or Chaired

Since 1998, organized and chaired about 50 conference sessions and conferences. These include being the technical program chair and the general chair of the ASME/STEL Joint Tribology Conference in 2008-2009.

1. Co-Chair, Session on "Contact Mechanics and Analysis," 1998 ASME/STLE Tribology Conference, Toronto, Canada, Oct. 25-28, 1998
2. Co-Organizer and Co-Chair, Magnetic Storage Committee, Symposium on Interface Tribology Towards 100 Gb/in2, Orlando, FL, Oct. 1999
3. Chair, Poster Session I, "Fundamentals of Tribology and Bridging the Gap Between the Macro- and Micro-Nanoscales," NATO Advanced Study Institute, Keszthely, Hungary, Aug. 2000
4. Co-Organizer and Co-Chair, Magnetic Storage Committee, Symposium on Interface Tribology Towards 100 Gb/in2 and Beyond, Seattle, WA, Oct. 2000
5. Co-Organizer and Chair, Symposium on Nanotribology and Nanotechnology for 1 Tbit/In2, STLE/ASME International Tribology Conference, San Francisco, CA, Oct. 2001
6. Co-Organizer and Chair, "Impact of Tribology on Emerging Technologies," ASME International Mechanical Engineering Congress and Exposition (IMECE), New York, NY, Nov. 2001
7. Co-Organizer, ASME/STLE International Joint Tribology Conference, Symposium on Frontiers of Magnetic Hard Disk Drive Tribology and Technology, Cancun, Mexico, Oct. 2002
8. Organizer, "Enhancing Bearing Design Through Life Rating Innovation," ASME International Mechanical Engineering Congress and Expositions (IMECE), New Orleans, LA, Nov. 2002
9. Representative, Tribology Division, ASME International Mechanical Engineering Congress and Expositions (IMECE), New Orleans, LA, Nov. 2002
10. Conference Planning Committee Member, ASME/STLE International Joint Tribology Conference, 2003-2013
11. Organizer, 2003 STLE/ASME International Joint Tribology Conference, Contact Mechanics Sessions and Magnetic Storage Tribology Sessions, Ponte Vedra, FL, Oct. 2003

12. Co-Organizer, STLE/ASME International Joint Tribology Conference, Symposium on Frontiers of Magnetic Hard Disk Drive Tribology and Technology, Ponte Vedra, FL, Oct. 2003
13. Chair, STLE/ASME International Joint Tribology Conference, Contact Mechanics Symposium, Ponte Vedra, FL, Oct. 2003
14. Chair, "Surface Friction," ASME International Mechanical Engineering Congress and Exposition (IMECE), Washington, DC, Nov. 2003
15. Chair, "Bearing Design," ASME International Mechanical Engineering Congress and Exposition (IMECE), Washington, DC, Nov. 2003
16. Technical Program Contributor, Tribology Division, ASME International Mechanical Engineering Congress and Exposition (IMECE), Washington, DC, Nov. 2003
17. Chair, "Mechanics," 4th International Conference on Tribology of Information Storage Devices (TISD), San Diego, CA, Dec. 2003
18. Vice-Chair, "Tribotesting III," 59th Annual Meeting and Exhibition, Society of Tribologists and Lubrication Engineers (STLE), Toronto, Canada, May 2004
19. Organizer, 2004 ASME/STLE International Joint Tribology Conference, Contact Mechanics Sessions and Magnetic Storage Tribology Sessions, Long Beach, CA, Oct. 2004
20. Chair, ASME/STLE International Joint Tribology Conference, Tribomaterials II, Long Beach, CA, Oct, 2004
21. Vice-Chair, "Tribotesting I," 60th Annual Meeting and Exhibition, Society of Tribologists and Lubrication Engineers (STLE), Las Vegas, Nevada, May 2005
22. Co-Organizer, World Tribology Congress III, Magnetic Storage Systems Track (consisting of 7 sessions), Washington, DC, Sep. 2005
23. Organizer, World Tribology Congress III, Frontiers of Magnetic Hard Disk Drive Technology and Tribology Symposium, Washington, DC, Sep. 2005
24. Organizer, World Tribology Congress III, K.L. Johnson Symposium IV, Washington, DC, Sep. 2005
25. Chair, World Tribology Congress III, Wear of Composites, Washington, DC, Sep. 2005
26. Technical Program Co-Representative, Tribology Division, ASME International Mechanical Engineering Congress and Exposition (IMECE), Orlando, FL, Nov. 2005
27. Organizer, 2006 STLE/ASME International Joint Tribology Conference, Contact Mechanics Sessions/Tracks, San Antonio, TX, Oct. 2006
28. Organizer, 2006 STLE/ASME International Joint Tribology Conference, Magnetic Storage Tribology Sessions/ Tracks, San Antonio, TX, Oct. 2006
29. Organizer, 2006 STLE/ASME International Joint Tribology Conference, Special Symposia on Contact Mechanics, San Antonio, TX, Oct. 2006
30. Chair, 2006 STLE/ASME International Joint Tribology Conference, Magnetic Storage Tribology II, San Antonio, TX, Oct. 2006
31. Chair, 2006 STLE/ASME International Joint Tribology Conference, Special Symposia on Contact Mechanics I: Experiments & Contact Modeling I, San Antonio, TX, Oct. 2006
32. Organizer, "Tribology-II," ASME International Mechanical Engineering Congress and Exposition (IMECE), Chicago, IL, Nov. 2006
33. Technical Program Co-Representative, Tribology Division, ASME International Mechanical Engineering Congress and Exposition (IMECE), Chicago, IL, Nov. 2006
34. Organizer, 2007 ASME/STLE International Joint Tribology Conference, Magnetic Storage Tribology Sessions/ Tracks, San Diego, CA, Oct. 2007

35. Organizer, 2007 ASME/STLE International Joint Tribology Conference, Special Symposium on Technology-Focused Magnetic Storage Tribology, San Diego, CA, Oct. 2007
36. Organizer, 2008 STLE/ASME International Joint Tribology Conference, Magnetic Storage Tribology Track, Miami, FL, Oct. 2008
37. Organizer, 2008 STLE/ASME International Joint Tribology Conference, Graduate Student Poster Track, Miami, FL, Oct. 2008
38. Technical Program Chair, 2008 STLE/ASME International Joint Tribology Conference, Miami, FL, Oct. 2008
39. Session Chair, "HDI Dynamics and Precision Motion Control," Asia-Pacific Magnetic Recording Conference (APMRC), Singapore, Jan. 2009
40. Session Chair, 2nd Joints Modeling Workshop, Theme C: Ideas for New Developments to Take Current Capabilities Closer to Deliver the Community's Demands, Dartington, United Kingdom, Apr. 2009
41. Organizer, 2009 ASME/STLE International Joint Tribology Conference, Magnetic Storage Tribology Track, Memphis, TN, Oct. 2009
42. Organizer, 2009 ASME/STLE International Joint Tribology Conference, Graduate Student Poster Track, Memphis, TN, Oct. 2009
43. General Chair, 2009 ASME/STLE International Joint Tribology Conference, Memphis, TN, Oct. 2009
44. International Advisory Board, CIMTEC 2010, 12th International Ceramics Congress, Progress in the Understanding and Control of Ceramics Surfaces for Tribology and Corrosion, Italy, Jun. 2010
45. Organizer, 2010 STLE/ASME International Joint Tribology Conference, Magnetic Storage Tribology Track, San Francisco, CA, Oct. 2010
46. Session Chair, "Contact Mechanics IV," 2011 ASME/STLE International Joint Tribology Conference, Los Angeles, CA, Oct. 2011
47. Panelist, Mechanical Engineering Department Heads Executive Committee (MEDHEC) "Tips for Tenure Symposium," ASME International Mechanical Engineering Congress and Exposition, San Diego, CA, Nov. 2013
48. Organizer and Moderator, MEDHEC Workshop on "Department Heads Professional Development: Faculty Mentoring," ASME International Mechanical Engineering Congress and Exposition, Montreal, Canada, Nov. 2014
49. Panelist, MEDHEC "Open Mic for New (and Nearly New) Department Heads/ Chairs," ASME International Mechanical Engineering Education Leadership Summit, Newport Beach, CA, Mar. 2015
50. Organizer, MEDHEC "Mechanical Engineering Pedagogy Task Force," ASME International Mechanical Engineering Education Leadership Summit, Tampa, FL, Mar. 2016
51. Organizer and Moderator, MEDHEC "Panel for department heads/chairs on how to build trust with your faculty and work effectively with your dean," ASME International Mechanical Engineering Education Leadership Summit, Tampa, FL, Mar. 2016
52. Organizer, "Workshop on Recent Engineering Advances in Cyber-Physical Systems, Advanced Materials for Energy Applications, and Water/Wastewater/Environmental Management Systems," Limassol, Cyprus, May 2016
53. Co-Organizer, MEDHEC Panel on "New and Prospective Faculty," ASME International Mechanical Engineering Congress and Exposition, Phoenix, AZ, Nov. 2016

54. Chair, ASME International Mechanical Engineering Education Leadership Summit, San Diego, CA, Mar. 2018

Invited Presentations

1. "Some Tribological Issues at the Macroscopic and Microscopic Scales," University of Wisconsin-Milwaukee, Milwaukee, WI, Mar. 1997
2. "A Static Friction Coefficient Model in the Presence of Very Thin Liquid Films Applicable to Micro-, Nano-Devices," State University of New York at Buffalo (SUNY), Buffalo, NY, Apr. 1997
3. "Some Tribological Issues at the Macroscopic and Microscopic Scales with Emphasis on Dynamics," Southern Illinois University at Carbondale, Carbondale, IL, Apr. 1997
4. "A Stiction Model Applicable to the Head-Disk Interface," Seagate Tribology Conference, Minneapolis, MN, Aug. 1997
5. "A Fundamental Static Friction Model Applicable to the Head Disk Interface and MEMS," University of Minnesota, Minneapolis, MN, Feb. 1999
6. "A Fundamental Static Friction Model Applicable to the Head Disk Interface and MEMS," UIUC, Feb. 1999
7. "Tribology of Contacting Head Disk Interfaces," National Storage Industry Consortium, Pittsburgh, PA, Sep. 1999
8. "Contact and Dynamic (Vibration) Issues Associated with 100 Gb/in2 and Beyond," National Storage Industry Consortium, San Diego, CA, Jan. 2000
9. "Friction and Vibration Modeling for Gbit/in2 and Beyond," Seagate Technology, Bloomington, MN, Jul. 2000
10. "A Model for Adhesive Forces in Miniature Systems," NATO Advanced Study Institute (ASI), Keszthely, Hungary, Aug. 2000
11. "Microtribodynamic Studies in Miniature Systems: Approaches in Modeling Dynamic Friction with Emphasis in Miniature Systems," Microelectronics Seminar, UIUC, Sep. 2001
12. "Adhesive Forces in MEMS," Panel on Tribology of MEMS, STLE/ASME Tribology Conference, San Francisco, Oct. 2001
13. "Friction/Adhesion and Vibration Interaction in Miniature Systems: Microtribodynamics," Panel on Friction and Vibration Phenomena, ASME International Mechanical Engineering Congress and Exposition (IMECE), New York, NY, Nov. 2001
14. "Using Micro and Nanoanalytical Techniques to Investigate 'Macro' Tribological Phenomena," STLE Central Illinois Section, Peoria, IL, Dec. 2001
15. "Some Aspects of Interfacial Interactions at the Nanometer Scale," IBM Zurich Research Laboratory, Rüschlikon, Switzerland, Sep. 2003
16. "Friction, Adhesion and Vibration Interaction at the Nanoscale," NSF Workshop on Nanoscale Systems, Dynamics and Control, Denver, CO, Jun. 2003
17. "Strategies to Avoid Head-Disk Instabilities Due to Adhesion in Ultra-Low Flying Head-Disk Interfaces," 9th Joint Magnetism and Magnetic Materials/Interfacing Conference, Anaheim, CA, Jan. 2004
18. "State-of-the-Art Tribology of Compressor Surfaces: Using Micro and Nanoanalytical Techniques to Investigate Tribological Phenomena, e.g., Scuffing," Keynote Lecture at the Tribology Symposium of the 59th Annual ABM International Congress, Sao Paulo, Brazil, Jul. 2004

19. "Microtribodynamics of Pseudo-Contacting Head-Disk Interfaces Intended for 1 Tbit/in2," Asian Pacific Magnetic Recording Conference '04, Seoul, Korea, Aug. 2004
20. "Dynamic Adhesive Instability of Sub-Five Nanometer Head-Disk Interfaces," 2005 IEEE International Symposium on Intelligent Control and 2005 Mediterranean Conference on Control and Automation, Limassol, Cyprus, Jun. 2005
21. "Significance of Interfacial Micro-Scale Parameters on the Dynamics of Structures from a Tribologist Perspective," Invited talk, NSF-SANDIA Joints Modeling Workshop, Arlington, DC, Oct. 2006
22. "Friction Force Measurements and Modeling in Hard Disk Drives: Effects of Roughness, Lubricant, and Surface Energy," The Magnetic Recording Conference (TMRC 2007), Minneapolis, MN, May 2007
23. "High Performance Coatings and Interfaces: Mechanical and Tribological Analyses from the nm to mm Length Scale up to 1000°C," Wright Patterson Air Force Base, Dayton, OH, May 2007
24. "Nanomechanical Property Measurements of Thin Solid Films," University of Cyprus, Jul. 2007
25. "Deposition and Nanomechanical Property Measurements of Magnetic-Mode Oxide Films for Thermal Management in Magnetic Storage Hard Disk Drives," Cyprus Fulbright High Commission, Jul. 2008
26. "Tribology Performance of PTFE-based Coatings for Air-conditioning Compressors: Towards Oil-less Operation," Workshop on Surface Engineering-Coatings, Texturing and Beyond, STLE/ASME Tribology Conference, Miami, Oct. 2008
27. "Experiments and Modeling at the Microscale," Invited Talk, NSF/SANDIA/AWE 2nd Joints Modeling Workshop, Dartington, United Kingdom, Apr. 2009
28. Industrial Presentations
29. "Tribology Research Related to Engineering Surfaces," Copeland Corporation, Sidney, OH, Feb.2001
30. "General State of Tribological Analysis and Modeling," Delphi Saginaw, Saginaw, MI, Oct. 2002
31. "Tribology, Micro/Nanotribology and Friction/Vibration Research at the University of Illinois Urbana-Champaign," Seagate, Bloomington, MN, Jul. 2003
32. "Nanoindentation Experiments on Micro-Wires Used in Cardiac Devices," Guidant Corp., St. Paul, MN, Jul. 2003
33. "Tribological Activities Relevant to Compressor Surfaces: Using Micro and Nanoanalytical Techniques to Investigate 'Macro' Tribological Phenomena, e.g., Scuffing," Thermo King/Ingersoll-Rand, Minneapolis, MN, Dec. 2003
34. "High Temperature Tribology and Using Micro and Nanoanalytical Techniques to Investigate 'Macro' Tribological Phenomena," Balzers AG, Leinchteinstein, Sep. 2003
35. "Tribology of Reciprocating Compressors and the Need for Advanced Testing and Characterization Techniques," Arcelik, Turkey, Mar. 2004
36. "State-of-the-Art Tribology of Compressor Surfaces Including Carbon Dioxide Used as Refrigerant," Embraco, Joinville, Brazil, Jul. 23, 2004
37. "Contact, Friction, Adhesion and Dynamic Coupling, viz. Microtribodynamics of Pseudo-Contacting Head-Disk Interfaces Intended for 1 Tbit/in2," Hitachi Global Storage Technologies, Odawara, Japan, Aug. 20, 2004
38. "Microtribodynamics (Friction, Adhesion, Contact and Dynamics) of Sub-five Nanometers Flying Head-Disk Interfaces in Magnetic Storage," Samsung, Gumi, Korea, Aug. 16, 2004

39. "Scuffing of Cast Iron and Al390-T6 Materials Used in Compressor Applications," Thermoking, Ingersoll-Rand Company, Minneapolis, MN, Jun. 2005.
40. "Flyability Issues of Sub-Five Nanometer Head-Disk Interfaces Including Adhesive and Roughness Effects," Seagate, Bloomington, MN, Jun. 2005
41. "Tribological Studies of Carbon Dioxide Refrigerant (CO_2) for Compressor Applications," Delphi-Harrison, Buffalo, NY, Jun. 2006
42. "Methodology and Modeling Approach to Pseudo-Contact Recording HDIs (Microtribodynaics GUI Program)," Seagate Technology, Bloomington, MN, Jun. 2006
43. "Nanomechanical Surface Interactions in Magnetic Storage Head-Disk Interfaces: Friction, Wear, and Adhesion," Samsung Information Systems, America, San Jose, CA, Mar. 2007
44. "Nanomechanical Property Measurements for Sub-10 nm Thick Films," Center for Tribology, San Jose, CA, Mar. 2007
45. "Scratch Modeling Using FEA for Improved Contact Performance of the Head Disk Interface," Samsung Information Systems America, San Jose, CA, Oct. 2007.
46. "Advanced HDI Contact Model: Accounting for Substrate Deformation and Surface Energy Variation within the Lubricant Layer," Seagate Technology, Bloomington, MN, Dec. 2007
47. "Nanomechanical Property Measurements for Sub-10 nm Thick Films," Hysitron Inc, Minneapolis, MN, Dec.2007
48. "Adhesion (Stiction) and Contact Modeling and Experiments in MEMS Including Roughness Effects," Analog Devices, Inc., Cambridge, MA, Jul. 2008
49. "Scratch-Related Damage Modeling and Analysis Using Computational Techniques," Samsung Information Systems America, San Jose, CA, Dec. 2008
50. "Scratch-Related Damage Modeling and Analysis Using Computational Techniques (and a General Overview of Head-Disk Interface Modeling)," Hitachi Global Storage Systems, San Jose, CA, Dec. 2008
51. "Contact Stiffness Measurements to Validate Contact Models at the Nanoscale & Contact Modeling Validation Using FEA," Seagate Technology, Bloomington, MN, Apr. 2009
52. "Advanced HDI Interfacial Interactions: Experiments and Simulations," Seagate Technology, Twin City Operations, Shakopee, MN, Aug. 2014
53. "Nanomechanical and Nanoscratch Property Measurements for Sub-10 nm Thick Films," Hysitron, Minneapolis, MN, Aug. 2014
54. "Elevated Temperature Scratch Resistance of HAMR-relevant Media Samples," Seagate Technology University Conclave, Bloomington, MN, Aug. 2015
55. "Advanced Materials and Coating Systems," Cummins Inc., Columbus IN, Jun. 2016
56. "Some Specialized Tribological Experiments and Surface Characterization (GUI)," Rtec Instruments, San Jose, CA, Jul. 2016
57. "High-temperature Nanotribology Experiments of State-of-the-Art Magnetic Media Samples," Seagate Technology, RMO, Freemont, CA, Jul. 2016
58. "High Temperature Tribological Performance of Ni Alloys Under Helium Environment for Very High Temperature Gas Cooled Reactors (VHTRs)," U.S. Department of Energy Nuclear Energy University Program, Argonne, IL, Oct. 2016
59. "High-temperature Tribological Performance of Ni Alloys Under Helium Environment for Very High Temperature Gas Cooled Reactors (VHTRs)," U.S. Department of Energy Nuclear Energy University Program, Germantown, MD, Jun. 2017

60. “Tribology Relevant to Lubricants and Oil and Gas Applications,” Shell Global Solutions (U.S.) Inc., Jun. 2017
61. “Nanowear of HAMR-related Samples at Elevated Temperatures,” Seagate Technology University Conclave, Freemont, CA, Oct. 2017

Select Poster Presentations

1. “Sub 10 nm Nanoindentation Mechanical Property Measurements Using a Very Sharp FIBed Diamond Indenter," Yu, N. and A. A. Polycarpou, Center for Nanoscience and Technology, Nanoindustry Workshop, University of Illinois at Urbana-Champaign, May 2003
2. "Measuring Mechanical Properties of Fine Wire Cross Sections Used in Cardiovascular Devices,” N. Yu and A. A. Polycarpou, 25th Annual Symposium on Applied Surface Analysis, Jun. 2003
3. “Textured Recording Slider Surfaces for Improved Tribological Performance in Ultra Low Flying Head Disk Interfaces,” Suh, A. Y., S. Lee, and A. A. Polycarpou, Smart Surfaces in Tribology Conference, Zurich, Switzerland, Sep. 2003
4. “Investigation of Contact Stiffness and Contact Damping for Magnetic Storage Head-Disk Interfaces,” Shi, X. and A. A. Polycarpou, STLE/ASME International Joint Tribology Conference, Ponte Vedra, FL, Oct. 2003
5. “Understanding Friction at Contacting Head-Disk Interfaces: Experiment and Theory,” Suh, A. Y., C. M. Mate, R. N. Payne, and A. A. Polycarpou, 50th Magnetism and Magnetic Materials Conference, San Jose, CA, Oct. 30-Nov. 3, 2005
6. “Slider Corner – Disk Operational Shock Impact Damage,” Katta, R. and A. A. Polycarpou, 2007 ASME/STLE International Joint Tribology Conference, San Diego, CA, Oct. 2007
7. “Improved Adhesive Contact Model Under Sub-Boundary Lubrication," Yeo, C. -D. and A. A. Polycarpou, 2007 ASME/STLE International Joint Tribology Conference, San Diego, CA, Oct. 2007
8. “Sliding Contact Analysis of Multilayer Thin-Films using Finite Element Method,” Katta, R. and A. A. Polycarpou, Gordon Research Conference on Tribology, Waterville, ME, Jul. 2008
9. “Dynamic Adhesion Measurements in Miniature Systems,” Lee, J. K. and A. A. Polycarpou, STLE/ASME International Joint Tribology Conference, Miami, FL, Oct. 2008
10. “Plane Strain Sliding Contact Analysis of Multilayer Thin-Films using Finite Element Method,” Katta, R. and A. A. Polycarpou, STLE/ASME International Joint Tribology Conference, Miami, FL, Oct. 2008 (Won 3rd prize)
11. “Nanometer-Thick Protective Coating Deposition and Characterization for Miniature Applications,” Demas, N. G., R. Meschewski, K. Polychronopoulou, C. Rebholz, and A. A. Polycarpou, NSF Engineering Education Awardees Conference, Reston, Virginia, Feb.2009
12. “Study of the Contact Behavior of Thin Films on a Substrate,” Lee, J. K. and A. A. Polycarpou, ASME/STLE International Joint Tribology Conference, Memphis, TN, Oct. 2009
13. "Contact Surface Characterization of Capacitive RF MEMS Switches with Cycling," Yeo, S.M., S. I. Tseregounis, and A. A. Polycarpou, ASME/STLE International Joint Tribology Conference, Memphis, TN, Oct. 2009 (Won 2nd prize)
14. "Effects of Surface Roughness on Fretting of Mechanical Joints,” Eriten, M., A. A. Polycarpou, and L. A. Bergman, ASME/STLE International Joint Tribology Conference, San Francisco, CA, Oct. 2010.

15. "Modeling Lubricant Forces in Magnetic Storage," Vakis, A. I., M. Eriten, and A. A. Polycarpou, ASME/STLE International Joint Tribology Conference, San Francisco, CA, Oct. 2010.
16. "Nanomechanical and Nanotribological Characterization of Magnetic-mode Oxide Thin Films for Thermal Management," Lee, J., M. Pervolaraki, G. Giapintzakis, and A. A. Polycarpou, ASME/STLE International Joint Tribology Conference, San Francisco, CA, Oct. 2010.
17. "3-DOF Model of Magnetic Storage Head Disk Interface for Use with Adhesive Contact Model with Friction, Vakis, A. I. and A. A. Polycarpou, 2011 ASME/STLE International Joint Tribology Conference, Los Angeles, CA, Oct. 2011 [Won 3rd place award].

Service

Professional Leadership. Polycarpou has been active in the professional field, and he was the ASME Tribology Division (TD) Chair, where he used his leadership to transform the TD to appeal to junior members and at the same time make the division financially successful. Polycarpou also started several different technical committees that are operating today. A major tenet of his professional leadership is to bring together engineers and scientists from academia, industry, and national labs to form strong partnerships and enable them to solve major technical problems. It is important to ensure we attract and engage the new generation of engineers and scientists in our professional activities to bring energy and innovation to the field, and preserve industry and institutional knowledge. Polycarpou also served in prestigious committees such as the ASME Thurston Lecture Award Committee, the nominations and oversight committee of the TD, and honors and awards committees of both ASME and STLE. Polycarpou organized dozens of symposia and conference sessions, including being the general Chair of the International Joint Tribology Conference. Since he became a Department Head, his focus expanded to education and department leadership, and was elected in the executive committee of ASME's Department Heads Executive Committee, where he served as Chair and past Chair. The main focus of this work, that targets Mechanical Engineering Department Heads nationally and internationally, is the professional development and education for the next generation of engineers. In this capacity, Polycarpou has been mentoring several Department Heads at other institutions.

Professional Societies *(list membership; office held, with dates; major committees or boards)*

1. Fellow, American Society of Mechanical Engineers
2. Fellow, Society of Tribologists and Lubrication Engineers
3. Founding Secretary, Magnetic Storage Committee, Tribology Division, ASME, 1998-2003
4. Member, Executive Committee, Tribology Division, ASME, 2001-2006
5. Chair, Technical Expositions Committee, Tribology Division, ASME, 2001-03
6. Chair, Education Committee, Tribology Division, ASME, 2003-2004
7. Secretary/Treasurer, Tribology Division, ASME, 2004-2005
8. Chair, Tribology Division, ASME, 2005-2006
9. Past Chair, Tribology Division, ASME, 2006-2007
10. Member-at-large, Basic Engineering Operating Board, ASME, 2002-2008
11. Member, Thurston Lecture Committee, ASME, 2002-2010
12. Founding Secretary, Contact Mechanics Committee, Tribology Division, ASME, 2004-2006
13. Vice-Chair, Contact Mechanics Committee, Tribology Division, ASME, 2006-2007
14. Chair, Contact Mechanics Committee, Tribology Division, ASME, 2007-2009
15. Member, Nominations and Oversight Committee, Tribology Division, ASME, 2008-2010

16. Vice Chair, Nominations and Oversight Committee, Tribology Division, ASME, 2010-2011
17. Chair, Nominations and Oversight Committee, Tribology Division, ASME, 2011-2012
18. Member, Honors and Awards Committee, Tribology Division, ASME, 2009-2013
19. Chair, Honors and Awards Committee, Tribology Division, ASME, 2013, 2014, 2015
20. UIUC Contact for the Information Storage Industry Consortium (INSIC), 2000-2012
21. UIUC Representative for the Illinois Center for Advanced Tribology (ICAT), 2008-2012
22. Member, Honors and Awards Committee, STLE, 2011-2016
23. Chair, Honors and Awards Committee, STLE, 2017-2018
24. Member, Technical Program and Advisory Committee, SES, 2022

University *(department, college and campus committees, administration, etc.)*

Department

1. Co-Chairperson, Qualifying Examination Subcommittee on Dynamic Systems and Controls, Spring 2000-Fall 2002
2. Awards Committee, 2000-2004
3. Seminar Committee, 2002-2005
4. MMS Laboratory Oversight Committee, 2002-2004
5. Co-Chairperson, Qualifying Examination Subcommittee on Dynamics and Vibrations, Spring 2004-2012
6. Advisory Committee, 2005-2006
7. Graduate Programs Committee, 2005-2009
8. Chair, Seminar Committee, 2005-2011
9. James Scholar Advisor, 2005-2011
10. ASME Advisor, 2006-2011
11. Graduate Admissions Committee, 2007-2009
12. Ad Hoc Committee on Undergraduate Design Courses, 2008
13. Ad Hoc Committee on Nano Course Coordination/Development, 2008
14. Undergraduate Programs Committee, 2009-2011
15. ABET Subcommittee, Undergraduate Programs Committee, 2010-2011
16. Design Stem Subcommittee, Undergraduate Programs Committee, 2010-2011
17. Faculty Recruiting Committee, 2011
18. Promotions and Tenure Committee, 2011
19. Administrative Committee, 2011
20. Texas A&M: Departmental Administrative Committee (includes all the Associate Department Heads), 2012-date

College

1. Panelist, National Teaching College Goals and Models Workshop, The Academy for Excellence in Engineering Education (AE3), Mar. 2001
2. Classroom Observer, The Academy for Excellence in Engineering Education (AE3), 2001, 2002, 2004, 2006, 2007, 2009
3. Department Representative, College of Engineering Ad Hoc Corporate Relations Committee, Spring 2007
4. Department Representative, College of Engineering Undergraduate Associate Heads, Fall 2008
5. Chair, Subcommittee of the College of Engineering Executive Committee to Review CEE 524: Construction Law, Fall 2008

6. Subcommittee of the College of Engineering Executive Committee to Review ENG 451: Success in the Workforce, Fall 2008
7. Ad Hoc Bylaws Subcommittee of the College of Engineering Executive Committee, Spring 2009-2012
8. Alternate Representative, College of Engineering Executive Committee, 2009-2010

Texas A&M/Texas Engineering Experiment Station

9. Department Heads Council, 2012 – date
10. Chair, Search Committee for the Civil Engineering Department Head, 2013-2014
11. Chair, Post Tenure Review Committee, 2016-2017
12. Member, Graduate Teaching Fellows Standing Committee, 2016-date
13. Member, TEES Centers Committee, 2017-2018
14. Member, TEES-ENSAM Advisory Board, 2017-date
15. Member, Facilities/Safety, 2020

University

1. Faculty Senate, UIUC, 2004-2006, 2008-2012
2. Campus Faculty Advisory Committee, UIUC, 2008-2012
3. Chair, Campus Faculty Advisory Committee, UIUC, 2011
4. Campus Promotions and Tenure Committee, UIUC, 2008-2011
5. Compliance Advisory Committee, Vice Chancellor for Research, UIUC, 2009-2012
6. Academic Leadership Council, Khalifa University, 2011

Other Outside Service

Reviewer for 100's of journal papers for dozens of different journals, and university centers, National Science Foundation (including over a dozen panels), NIST/Bird Foundation.

Leadership and Improvement Activities

1. "Leadership 2000," seminars presented by the Zenger Miller Company, Bloomington, MN, Feb. 1999
2. "Time and Project Management," seminar presented by the Franklin Covey Company, Bloomington, MN, Mar. 1999
3. "Effective Teaching: A Workshop," The Academy for Excellence in Engineering Education (AE3), College of Engineering, Oct. 1999-Apr. 2000
4. "Pedagogy 2000: Teaching, Learning, and Technology," Annual Faculty Retreat on Active Learning, UIUC, Feb. 10, 2000
5. "Faculty Training Workshop/Educational Technologies Summer Workshop," UIUC, May 31-Jun. 1, 2000
6. "Designing and Redesigning Engineering Courses," The Academy for Excellence in Engineering Education (AE3), College of Engineering, UIUC, Oct. 12, 2000
7. "Technical Executives Conference," ASME, Mar. 8-10, 2002
8. "Technical Executives Conference," ASME, Mar. 14-16, 2005
9. "Inaugural Faculty Leadership Forum," College of Engineering, University of Illinois at Urbana-Champaign, 2010
10. Fellow, Committee on Institutional Cooperation, Academic Leadership Program (one of 5 fellows selected by the provost to represent UIUC). CIC comprises of the Big 10 schools plus the University of Chicago, 2011.
11. Mediator, Certified State of Texas Mediator, 2015.