**STEVE T. CHO, Ph.D., MBA**

699 W Carob Pl. Chandler, AZ 85248 [stcho@alum.mit.edu](mailto:stcho@alum.mit.edu) (602) 370-6382

###### EDUCATION

**MBA, The University of California, Los Angeles, CA, 2001.**

Concentration: Entrepreneurship.

**Ph. D., Electrical Engineering, The University of Michigan, Ann Arbor, 1991.**

Major: Solid-State/Circuits.

**M.S., Electrical Engineering, The Ohio State University, Columbus, 1987.**

Major Field: Solid-state.

**B.S., Electrical Engineering, Massachusetts Institute of Technology, Cambridge, MA, 1985.**

Concentration: Solid State, Chemical Engineering, Creative writing/literature.

**POST DOCTORAL**

**Research Fellow, Electrical Engineering, The University of Michigan, Ann Arbor, MI, 1991-1992.**

Research: Microsystems (sensors and actuators), systems, instruments, IoT (cluster smart machine control).

###### DISSERTATION

**Ph. D., Electrical Engineering, The University of Michigan, Ann Arbor, 1991.**

Dissertation: An Ultrasensitive Pressure-Based Microflow Sensor

Chair: Dr. Kensall D. Wise

**M.S., Electrical Engineering, The Ohio State University, Columbus, 1987.**

Dissertation: Degradation on SNOS Memory Devices Under Dynamic Stress.

Chair: Dr. Steven Bibyk

**B.S., Electrical Engineering, Massachusetts Institute of Technology, Cambridge, MA, 1985.**

Thesis: Determination of the Segregation Coefficient of Boron in (100) Silicon.

Chair: Dr. Dmitri Antoniadis

## **RESEARCH AND BUSINESS EXPERIENCE**

**EnerGaia LLC**, Chandler, AZ **2013 - 2017**

**Principal:** Converting research into products.

* Company founded on the technologies developed by Dr. Steve T. Cho. These include: personal cooling, packaging, ultrasonic electrodeposition, closed loop control fluidic drug delivery and low cost solar materials.
* Assisting company in raising funds and developing technology for product applications.
* Involved in technical road mapping, business planning and strategic market research.
* Developed electroless Indium plating for electronic packaging technology (focus on chemistry and process).

**CUBE TECHNOLOGY**, Chandler, AZ **2009 - 2013, 2014**

**Director of Research and Development:** Growing a start-up (2 to 10 employees).

* Managed activities for development of a thermally-based portable power system based on thermoelectric technology and the development of a miniature cooling device based on polymer materials. Scope of activities includes design, test, system architecture, and materials development (organic and ceramic). Also led programs in micro-climate control and thermal recuperators.
* Re-focused company strategy to prevent closure. Raised $3MM based on new direction.
* Provided program management for SBIR contracts (reporting, internal processes, documentation).
* Performed valuation on potential partnerships, acquisitions and product offerings.
* Benchmarked competitive alternative and green energy technologies and cost modeled potential products. Projected reliability through predictive statistics. Put together proposals for harvesting energy technologies (CO2, hydro, temperature).
* Improved productivity by raising yield from 10-90%, raising MTBF to product standard, and improving production flow by 4X. Released alpha and beta instruments.
  + Key technologies include: powder formulation (filtering, grinding, sintering, phase management), rapid prototyping, zero thermal expansion ceramic process development, teflon materials development, combustion design, and miniature refrigeration and heating systems.

**SURFECT TECHNOLOGIES**, Tempe, AZ **2007-2009**

**Chief Technology Officer:** Driving a publicly traded start-up towards market leadership.

* Architect of solar strategy based on a blend of technology bench marking, strategic marketing, and financial analysis. Technical innovations (solar cell metallization, module packaging) designed to reduce solar cost by 60% over a 2 year period. 10 employees. Strategy brought company back from near bankruptcy with $5.9MM raise.
* Spearheaded process development and capital equipment manufacturing of a smart electroplating system for the solar and semiconductor industries. Key product technologies related to packaging and interconnect (RDL, TSV, electroless). Directed complex multi-disciplinary, multi-national programs; derived product spec and definition from customer feedback. Activities revolved around chemistry-process-tools.
* Performed M&A valuations and due diligence on companies of interest.
* Developed product roadmap based on financial analysis and voice of the customer input.
* Performed factory flow analysis: facilities, automation (FOUP, FOSB), lean sigma, kaizen and Value Stream Mapping.
* Established outsourced manufacturing partnerships with domestic and international integrators and suppliers (Korea, Germany, Switzerland, Hong Kong, and China). Met design-to-cost objectives.
* Scope of activities covered operations, product management, R&D, financial modeling, M&A, and customer, investor, public relations (CRM, IR, PR) and fund raising (proposals, presentations and business plans).
* Doubled IP portfolio through patent creation (12); also published trade papers (including editor pick).
* Worked with major semiconductor and solar manufacturers on adoption: TI, Samsung, TSMC, SPIL, Rena, Q-Cells.
* Key technologies related to electrochemistry, chalcopyrite materials, ultrasonics, metals, packaging, machine design, in situ chemical monitoring. Technology currently in development for the packaging industry.

**Hospira/Abbott Laboratories, Morgan Hill, CA 1997-2007**

**Program Manager (R&D)** **– New Product Development**: Revolutionizing the Flat Market in Biotech.

* Discovered $300MM opportunity in wireless fluid dosing/monitoring systems (20% CAGR, 2% growth market). Derived opportunity through strategic marketing activities: voice of the customer (VOC) for product definition and design (cluster, conjoint), market adoption, competitive strategy (game theory), and risk analysis (FMEA). Formulated product development strategy.
* Delivered prototype electromechanical “smart” pump on-time and to budget. Led ME, EE, and SW teams (component to system). Reduced cost 25% via supplier option pricing and EVM, generating ROI >60%.
* Created technology portfolio to ensure future revenue streams and developed new product development processes to support execution. Implemented game theory to determine market adoption. Performed technology due diligence for M&A activities.
* Assembled core competence resources to implement program for portable to implantable instruments. Performed make vs buy evaluation (due diligence) and formed R&D network (>20 partners) in embedded software, IC Design, injected molded packaging, test. Technology designed for high margin (>50%) and designed for quality using statistical robust design techniques.
* Developed tech roadmap, patent landscape and initiated discovery in multiple technologies related to cardiology, optical diagnostics, oncology, microfluidics and micropower (batteries and fuel cells).
* Wrote software code for operating interface and detection algorithms (bubble, occlusion, directional sensing).

## **Candescent Technologies Corporation, San Jose, CA 1995-1997**

**Assembly Engineering Manager:** Leadership in a Flat Panel Display Start-Up.

* Turned around failing department by raising yield in 9 months (3% to 95%) which led to $70MM in milestone payments and licensing to Sony and Canon. Initiated improvements through consensus building and implementing project management discipline; recruited and mentored staff.
* Differentiated company from competitors (30 start-ups) by solving the most critical technical problems (“company killers”). Created dominant technology position (20 patents) by coordinating multiple departments, vendor partnerships, and recruiting and mentoring the staff (DMAIC, DOE, robust design). Packaging technology is now used in OLED displays.
* Improved company attractiveness for investment by demonstrating manufacturing feasibility. Designed factory flow, manufacturing tools and supply chain for assembly (order, forecasting and inventory). Fund raising doubled in one year.
* Key technologies related to electron emission devices, laser sealing, high vacuum technology, ceramic structures, liquid flow and thermal control.

**Draper Laboratories, Cambridge, MA 1992-1995**

**Sr Member Technical Staff:** Launching New Opportunities in a Non-Profit Lab.

* Resolved the engineering challenges and built the first commercial grade MEMS micro-gyroscope. Technology is the basis of inertial devices used in cell phones, vehicles, games, and guidance systems.
* Increased lab output by 10X without capital investment through continuous improvement (statistical constraint analysis, new SOP’s) and optimal root cause analysis. Executed system through coordination (engineers, techs, and managers) and mentoring. Improved output led to a prototype production in 7 months and landed air force/navy contracts (grew company revenue by 10%).
* Created manufacturing innovations which led to 6 sigma yield and enabled commercial viability. Device licensed to Rockwell/Boeing and is being manufactured by Honeywell and Motorola. Served as company liaison in transfer to production; revenue being generated through royalty streams. Trained in SPC, TQM, PMBOK.
* Led product development in micro-electromechanical (MEMS) devices: 6-axis IMU’s, packaging, accelerometers, actuators, ID fingerprint profilers, surgical devices. Contracts awarded exceeded $1MM/yr.
* Technologies include: MEMS processing (surface and bulk), accelerometer, low noise electronics, ASIC design, vacuum packaging.

**NCR Microelectronics, Colorado Springs, CO 1983, 1984-1985**

**Process Development Engineer:** Advancing transistor technology.

* Device physics: modeled latest generation of transistors for circuit design (SUXES).
* Materials: Characterized spin-on-glass (SOG) and polyimide films for multi-layer metal applications (FTIR, GC, TGA, Mass spec, SEM, EDACS). Developed mask test pattern for production.
* Test: Designed and built a laser based thin film stress gauge from theory. System delivered on time and to budget. Accuracy to 0.5%.

Awards

## Nominated, Best Teacher, Arizona State University - Polytechnic School, Mesa, AZ: 2015, 2016, 2018

## Best Branding Statement – Hospira Inc, Finalist, May 2003.

## Best Technical Presentation – Abbott Laboratories Tech Exchange, Abbott Labs, Morgan Hill, CA 1998.

## The Draper Distinguished Performance Award – The Charles Stark Draper Laboratories, 1994

President’s Award for Outstanding Technical Performance – Draper Labs, 1994

Vice-President of Engineering Annual Award for Best Technical Paper – Draper Labs, 1993

Vice-President of Engineering Recognition Award for Outstanding Performance – Draper Labs 1992

National VLSI Design Contest: 1st Place. Microelectronic System Education Conference, June 1991

Tiny Chip Regional VLSI Design Contest – 1st Place, June 1990

## Roger A. Haken Award (Best Paper/Presentation), IEEE/International Electron Device Meeting (IEDM), Dec 1989

Best Paper In Section Award, Extended Abstracts TECHCON ’88, October 1988

**FUNDRAISING**

**EnerGaia LLC, Chandler, AZ 2013**

Raised $100k through the Army SBIR program (Phase I). Prepared proposal, gained approval and managed execution of the contract.

**CUBE Technology Inc, Chandler, AZ 2009-2013**

Raised $3.8MM through preparation and submission of SBIR proposals (Army, Marines, Air Force, DARPA), including 4 Phase I's, 2 Phase II's, a Phase II Enhancement, and a Phase III.

**Surfect Technologies Inc, Tempe, AZ 2007-2009**

Raised $5.9MM through private equity fundraising. Prepared proposals, budgets and gave presentations. Technical and product interface with investment bankers and VC's.

**Abbott Laboratories/Hospira, Morgan Hill, CA 1997-2007**

Competed against global divisions for internal R&D funding. Presented technical and business case for funding. Raised >$3MM for the development of novel drug delivery systems.

**Candescent Technologies, San Jose, CA 1995-1997**

Part of team working with Executive management to form partnerships and fundraising. Timely department innovations led to the formation of an alliance with Sony ($75MM raised).

**Publications**

Presentations:

J. Sarceda and S. T. Cho, "The Key Attributes that Drive University Entrepreneurship," 2020 IEEE Technology & Engineering Management Conference (TEMSCON), Novi, MI, USA, 2020, pp. 1-6.

5th Annual Entrepreneurship Living Learning Community Workshop. Champaign, IL, May 2016

“Strategic Marketing: A Pattern Emerges” Invited

S. T. Cho, “Technological Entrepreneurship and Management: Housing Entrepreneurship in the Engineering School”, Deshpande Symposium, Lowell, MA, June 10, 2019. Peer reviewed; presentation only.

Aram Chavez and S. T. Cho, “Aha to Exitl”, Deshpande Symposium, Lowell, MA, June 10, 2018. Peer reviewed; 4h workshop given for peer universities.

S. T. Cho and A. Chavez, “Entrepreneurial Marketing that’s Relevantl”, Deshpande Symposium, Lowell, MA, June 12, 2019. Peer reviewed; presentation only.

Interviews given for articles:

A. Davis, "A Road Map for Engineering Students Who Aspire to Start a Company", The Institute, Nov 10 2017. http://theinstitute.ieee.org/career-and-education/education/a-road-map-for-engineering-students-who-aspire-to-start-a-company

Interview: Ryan Ferdowsian, ASU Global Launch host international students for science and tech training, State Press, Sept 9, 2018. Write-up about KAUST participation.

Peer Review Conference:

S.T. Cho, I. Black, A, Jagannathan, J. Barone, A. Chavez, "Performing Under Innovative Uncertainty: Learning to Groove", pp. 1-8, TEMSCON 2018, Chicago, IL, June 2018.

S.T. Cho, A. Chavez, and J. Bronowitz, "A Map of Technology Entrepreneurship: Aha to Exit", TEMSCON 2017, p. 148-154, Santa Clara, CA June 2017.

Peer Review Journal (Prior to ASU)

S.T. Cho, K. Najafi, and K.D. Wise, “Internal Stress Compensation and Scaling of Ultrasensitive Boron-Doped Silicon Membranes”, IEEE Trans Electron Devices, April 1992

J. Ji, S.T. Cho, K. Najafi, Y. Zhang, and K.D. Wise, “An Ultraminiature CMOS Pressure Sensor for a Multiplexed Cardiovascular Catheter”, IEEE Trans Electron Devices, October 1992

S.T. Cho and K.D. Wise, “A High Performance Ultrasensitive Microflow Sensor with Built-In Self-Test”, Sensors and Actuators A, Vol. 36, pp. 47-56, June 1993

Invited Papers (Prior to ASU)

D. S. Marshall and S.T. Cho, "Micro-combustor Thermoelectric Power Generator for 10-50W Applications", SPIE Defense Security and Sensing, Orlando, Fl, April 2010.

S.T. Cho, “Solar Takes a Page from WLP Playbook”, IMAPS 2008, October 2008

Magazine Publications (Prior to ASU)

S.T. Cho, “Leveling the Playing Field for WLP Interconnects”, ChipScale Review, pp. 46-49, June 2008

S.T. Cho, “Direct-Energy Plating: A New Electrodeposition Process for Interconnects”, Semiconductor International On-Line, <http://www.semiconductor.net/article/CA6526624.html>, /CA6529622.html, Feb 2008. **Editor Pick**

Conference Papers (Prior to ASU)

S.T. Cho and L. Levine, “Wafer Plating Using a Single Chamber, Multi-Metal, Bump Plating Tool”, IMAPS 2007, October 2007

S.T. Cho, S. Basame, L. Levine, “The Development of a Single Chamber, Multi-Metal, Bump Plating Tool”, 4th Annual IWLPC, September 2007

S.T. Cho and F.M. Erdmann, “A High Performance Hermetic Sealing Technology”, IEEE Solid-State Sensors and Actuator Workshop (Hilton Head ‘98), pp. 229-232, June 1998

S.T. Cho, “A Batch Dissolved Wafer Process for Low Cost Sensor Applications”, Meeting of the SPIE, Vol. 2639, pp. 10-17, October 1995.

M. Weinberg, A.T. Kourepenis, S.T. Cho, P. Ward, T. King, “An Improved Tuning Fork Rate Micromechanical Gyroscope”, AIAA Guidance and Controls Conference 1994

M. Weinberg, A.T. Kourepenis, S.T. Cho, T. King, P. Maciel, “An Tuning Fork Rate Micromechanical Gyroscope”, AIAA Guidance and Controls Conference 1993

J. Bernstein, S.T. Cho, A.T. Kourepenis, P. Maciel, and M. Weinberg, “A Tuning Fork Rate Gyroscope”, IEEE MEMS ’93, pp. 143-148, February 1993

S.T. Cho and J. Ji, “University of Michigan Technologies for CMOS Integrated Circuits and Silicon Micromachining”, UM Technical Report #203, February 1992

S.T. Cho and K.D. Wise, “A Self-Testing Ultrasensitive Microflow Sensor”, Sensors Expo ’91, pp. 208B-1 – 208B-4, Chicago, Il, October 1991

S.T. Cho and K.D. Wise, “A High Performance Ultrasensitive Microflow Sensor with Built-In Self-Test for Low Pressure Applications”, Sixth Annual SRC/DARPA CIM/IC Workshop, August 1991

J. Ji, S.T. Cho, K. Najafi, Y. Zhang, and K.D. Wise, “An Ultraminiature CMOS Pressure Sensor for a Multiplexed Cardiovascular Catheter”, Int’l Conf on Solid-State Sensors and Actuators (Transducers ’91), pp. 1018-1020, June 1991

S.T. Cho and K.D. Wise, “A High Performance Ultrasensitive Microflowmeter with Built-In Self-Test”, International Conference on Solid-State Sensors and Actuators (Transducers ’91), pp. 400-403

S.T. Cho, K. Najafi, and K.D. Wise, “Secondary Sensitivities and Stability of Ultrasensitive Silicon Pressure Sensors”, IEEE Solid-State Sensors and Actuator Workshop (Hilton Head ‘90), pp 184-187

S.T. Cho, K. Najafi, and K.D. Wise, “Scaling and Dielectric Stress Compensation of Ultrasensitive Boron-Doped Silicon Microstructures”, IEEE Workshop on Microelectromechanical Systems, pp 50-55, Feb 1990

S.T. Cho et al, “An Ultrasensitive Silicon Pressure-Based Flowmeter”, IEDM Tech Digest, pp. 499-502, December 1989

K.D. Wise, N. Najafi, C.L. Johnson, J. Cowles, S.T. Cho, and K. Najafi, “An Integrated VLSI Sensor for Semiconductor Process Control”, Extended Abstracts TECHCON ’88, pp. 345-348, October 1988 (Best Paper in Section Award)

S.T. Cho, S.K. Chau, and S.B. Bibyk, “Interface Degradation and Gradual Wearout in SNOS Memory Devices Under Dynamic Stress”, Proc. of the Electrochemical Society; Vol. 87-10, pp. 80-92, October 1987

Book Reference (Prior to ASU)

Julian W. Gardner, Microsensors: Principles and Applications, J. Wiley and Sons, pp. 166-168, 1999 (thesis published in textbook).

### Patents

US

No 9,272,089. Jacobson, Cho, et al, Differential Pressure Based Flow Sensor for Medication Delivery Monitoring and Method of Using the Same, Mar 2016.

No. 8,403,908: J. Jacobson, S.T. Cho et al, Differential pressure based flow sensor assembly for medication delivery monitoring and method of using the same, March 2013

No. 7,201.846: S.T. Cho, H. Christianson, Micro-Fluidic Anti-Microbial Filter, April 2007

No. 7,082,843: S.T. Cho, G. Clark, Fluid Flow Measurement Device, August 2006

No. 6,981,960: S.T. Cho, G. Clark, Closed Loop IV Fluid Flow Control, January 2006

No. 6,980, 855: S.T. Cho et al, Microneedles for Minimally Invasive Drug Delivery, December 2005

No. 6,964,204: S.T. Cho, Fluid Flow Measurement Device, December 2005

No. 6,953,455: S.T. Cho et al, Medicine Delivery System, October 2005

No. 6,813,964: S.T. Cho et al, Fluid Flow Measurement Device, November 2004

No. 6,767,341: S.T. Cho, Microneedles for Minimally Invasive Drug Delivery, February 2004;

No. 6,685,668: S.T. Cho and G.E. Clark, Closed Loop IV Fluid Flow Control, February 2004;

No. 6,571,464: S.T. Cho, Self-Standing Wall Spacer and Methods of Fabrication and Installing Same, June 2003

No. 6,561,224: S.T. Cho, Microfluidic Valve and System Therefor, May 2003

No. 6,445,053: S.T. Cho, Micromachined Absolute Pressure Sensor, September 2002

No. 6,349,740: S.T. Cho et al, Monolithic High Performance Miniature Flow Control Unit, Feb 2002

No. 6,278,066: S.T. Cho et al, Self-Standing Wall Spacer Structures, Aug 2001

No. 6,194,830: S.T. Cho et al, Multi-Compartment Getter-Containing Flat-Panel Device, Feb 2001

No. 6,109,994: S.T. Cho et al, Gap Jumping to Seal Structure, Aug 2000

No. 5,977,706: S.T. Cho et al, Multi-Compartment Getter-Containing Flat-Panel Device, Nov 1999

No. 5,952,574: M.S. Weinberg, S.T. Cho, et al, Trenches to Reduce Charging Effects, Sept 1999

No. 5,911,156: P.A. Ward, M.S. Weinberg, S.T. Cho, et al, Split electrode to minimize charge transients, June 1999

No. 5,837,562: S.T. Cho, Process for Bonding a Shell to a Substrate for Packaging a Semiconductor, Nov 1998

No. 5,656,785: C. Trainor, S.T. Cho, and R. Hopkins, Micromechanical Contact Load Force Sensor, Aug 1997

No. 5,492,596: S.T. Cho, Method of Making a Micromechanical Tuning Fork Gyroscope, Feb 1996

No. 5,377,524: K.D. Wise and S.T. Cho, Self-Testing Capacitive Pressure Transducer and Method, Jan 1995

International

ES2308657 (T3), S. T. Cho, Microneedles for minimally invasive drug delivery, Jan 2008.

WO2003068370A2, WWG2003707678, S.T. Cho, Micro-fluidic valve and system thereof, April 2007.

WO20051119181A1, WWG2004753159, S.T. Cho, H. Christianson, G. Clark, J. Sperinde, Combined flow rate bubble, occlusion, Feb 2007.

WO2003068373A2, WWG2003706041, S.T. Cho and H. Christianson, Micro-fluidic anti-microbial filter, June 2006.

WO2000061215A1, WWG2000928139, S.T. Cho and H. Christianson, Monolithic high performance Miniature Flow Control Unit, March 2005.

WO1998026440A1, WWG1019997005179, S.T. Cho et al, Gap Jumping to Seal Structure July 2003.

WO200209795A2, S.T. Cho and G. Clark, Closed-loop IV fluid flow control, Feb 2002.

Filed:

A Directed Energy Deposition System for High Aspect Ratio Structures

A Slider Manifold Valve

An Area Anode Array for High Performance Electrodeposition

A Modular Electrodeposition System

Ultrasonic Enhanced Electroless Deposition

An Ionic Monitoring System for Electrodeposition

A Seed Metal-less Electrodeposition Process

SolarIC: An Integrated Low Cost Solar Package

A Triode wafer carrier

An electro-optical plating anode

Maskless Electrochemical Lithography

**TEACHING EXPERIENCE**

Lecturer: created course content, exercises, lecture material.

10 different classes taught

First chair – dissertations (4)

Summer 2019

TMC310 (On-line) – Promotion of the Enterprise

Global Launch – KAUST (King Abdullah University of Science and Technology, Saudi Arabia) – Technology Entrepreneurship

Spring 2019

TMC310 – Promotion of the Enterprise

TEM400 – Technology Entrepreneurship

TEM431 – Innovation Management

TEM482 – Start-Up Workshop

TEM482 (on-line) – Start-Up Workshop

TEM531 – Disruptive Innovation and Technology Evolution

TEM598 – Technological Innovation and Entrepreneurship

Fall 2018

AMT592 - Research

OMT549 – Research Techniques and Applications

OMT520 – Strategic Management of Technology

TEM400 – Technology Entrepreneurship

TEM494 – Data Driven Decision Making

TEM598 – Data Driven Decision Making

TEM598 – Technological Innovation and Entrepreneurship

Summer 2018

TMC310 (On-line) – Promotion of the Enterprise

Global Launch – KAUST (King Abdullah University of Science and Technology, Saudi Arabia) – Technology Entrepreneurship

Spring 2018

TEM400 – Technology Entrepreneurship

TEM482 – Start-Up Workshop

TEM482 (on-line) – Start-Up Workshop

TEM494 – Digital Promotion and Analytics

TEM598 – Digital Promotion and Analytics

TEM598 – Technological Innovation and Entrepreneurship

TMC310 – Promotion of the Enterprise

Fall 2017

OMT549 – Research Techniques and Applications

TEM400 – Technology Entrepreneurship

TEM482 – Start-Up Workshop

TEM598 – Technological Innovation and Entrepreneurship

TMC330 – Leading the Enterprise

Summer 2017

TMC310 (On-line) – Promotion of the Enterprise

Spring 2017

TEM400 – Technology Entrepreneurship

TEM482 – Start-Up Workshop

TEM493 – Honors Thesis

TEM598 – Technological Innovation and Entrepreneurship

TMC310 – Promotion of the Enterprise

Fall 2016

EGR492 – Honors Directed Study

TEM492 – Honors Directed Study

TEM400 – Technology Entrepreneurship

TEM482 – Start-Up Workshop

TEM598 – Technological Innovation and Entrepreneurship

TMC330 – Leading the Enterprise

Summer 2016

TMC310 (on-line) - Promotion of the Enterprise

Spring 2016

TMC310 - Promotion of the Enterprise

TEM400 - Technology Entrepreneurship

TEM482 - Technology Entrepreneurship

TEM598 – Technological Innovation and Entrepreneurship

Fall 2015

TMC310 - Promotion of the Enterprise

TEM400 - Technology Entrepreneurship

**PROFESSIONAL MEMBERSHIPS**

Active:

Member, Institute of Electrical and Electronics Engineers (IEEE).

Member, Technology Engineering Management Society (IEEE).

Prior to ASU:

Member, American Society of Mechanical Engineers (ASME).

Member, American Institute of Aeronautics and Astronautics (AIAA).

Member, American Institute of Chemical Engineers (AIChE).