

**CAREER OBJECTIVE**

Fast-paced opportunities in engineering where I can leverage my expertise in design and control of advanced cyber-physical systems to create new markets through the development ground-breaking technologies.

**EDUCATION****Texas A&M University, College Station, TX**

Doctor of Philosophy, Mechanical Engineering, May 2015

Master of Science, Mechanical Engineering, May 2011

**California Institute of Technology, Pasadena, CA**

Bachelor of Science, Electrical Engineering, June 2007

**EXPERIENCE**

**Control Software Engineer** eSolar, Inc. Apr. 2015–Nov. 2016  
Burbank, CA

Worked with Sundrop Farms to construct the world's first fully renewable farm (at a project cost of over \$200 million) in South Australia using concentrated solar power to desalinate seawater and provide balance of power. Our small team was able to deliver its first commercial installation on schedule; all milestone tests and opening day went smoothly. Responsible for designing control algorithms for field of over 23,000 heliostats to maximize power production without destroying the plant. Designed automated maintenance system to diagnose and correct failures in the plant without user intervention. Took ownership of automated testing framework, revamped and significantly improved test coverage.

**Graduate Research Assistant** Texas A&M University Sep. 2008–Dec. 2014  
College Station, TX

Studied kinematics of human walking as a basis for motion planning in bipedal robots by performing motion capture on human test subjects. Developed formal methods in energy shaping for stabilization of motion in mechanical systems. Applied theoretical methods in simulation and in practice using C++, Mathematica, and MATLAB. Worked on design of bipedal robots and created software to interface with sensors and control motors to realize robotic walking.

**Graduate Teaching Assistant** Texas A&M University Jan. 2014–May 2014  
College Station, TX

*Design of Nonlinear Control Systems* (MEEN 655). Graduate level course. Responsibilities included mentoring students, writing solution sets for homework and exams, and covering lectures when instructor was unavailable. Course description: "To enable students to design controllers for nonlinear and uncertain systems; and apply their designs to mechanical systems."

**Graduate Student Researcher** NASA Johnson Space Center Jun. 2013–Jan. 2014  
Houston, TX

Designed and implemented walking control algorithms on the Valkyrie robot in C++11 and Python for the DARPA Robotics Challenge. Created modular software for ROS using efficient design patterns and object-oriented programming. Created safety-critical, production software using contemporary programming paradigms and collaboration tools such as Git, Confluence, Jira, etc.

**NSF Graduate Research Fellow** Texas A&M University Jun. 2010–Jun. 2013  
College Station, TX

Designed and studied human-like walking gaits in bipedal robots through simulation and experiment using C++, Mathematica, MATLAB, and Perl. Published numerous papers and presented results at domestic and international conferences. Annual stipend \$30,000 plus cost of education for three years.

## SKILLS

- Advanced computer user with over 25 years computer experience including DOS, Windows and Linux.
- Expertise in MySQL and SQL Server.
- Expertise in sensor/actuator interfacing and sensor fusion using ROS, motion planning and control for humanlike motions.
- More than twenty years programming experience with numerous languages. To name a few: C++14, C++/CLI, C#, Java, JavaScript, Mathematica, MATLAB, PHP, Python.
- Expert knowledge of software design patterns, object-oriented design, C++ template metaprogramming, etc.
- Technical writing: Skilled writer with many publications. Able to communicate complex ideas to diverse audiences. Strong knowledge of L<sup>A</sup>T<sub>E</sub>X.
- Public speaking: Comfortable and skilled speaker. Numerous presentations at technical meetings and conferences including keynote presentation for Innovation' 14 and Automation' 14 at NASA-JSC.
- Spanish: seven years of classes including K-12 and undergraduate.
- Hebrew: three university courses plus self-study.

## SELECTED HONORS AND AWARDS

- Gonfalonier, Dwight Look College of Engineering (faculty selection), Texas A&M University (2015)
- Travel Award, IEEE/RSJ International Conference on Intelligent Robots and Systems (2011)
- Travel Award, Graduate Student Council, Texas A&M University (2011)
- Outstanding Student Research Award, Texas A&M University (2011)
- NSF Graduate Research Fellowship, Texas A&M University (2010)
- Coaches' Award for teamwork, Caltech Beavers NCAA Basketball (2007)
- Summer Undergraduate Research Fellowship, Caltech (2005)

## EXTRACURRICULAR ACTIVITIES

- Assistant Director, Texas A&M Grad Camp 2012, worked jointly with Director for over six months to plan, coordinate, and execute introductory camp for incoming graduate students. Recruited and interviewed camp counselors. Led counselors through training and teambuilding, teaching communication, leadership skills, conflict resolution, and emergency management.
- Counselor, Texas A&M Grad Camp 2010, supervised groups of incoming graduate students.
- Worked with several outreach programs to encourage minorities to pursue higher education.
- NCAA Division III Basketball, guard, 2004-07, Caltech Beavers.
- NCAA Division III Soccer, goalkeeper, 2003-05, Caltech Beavers.
- Club & High School Lacrosse, goalkeeper, five seasons from 1999-2003.

## SELECTED PUBLICATIONS

R. W. Sinnet, and A. D. Ames, "Energy Shaping of Hybrid Systems via Control Lyapunov Functions," in *2015 American Control Conference (ACC 2015)*, pp. 5992-7, Chicago, Jul. 2015.

R. W. Sinnet and A. D. Ames, "Bio-Inspired Feedback Control of Three-Dimensional Humanlike Bipedal Robots," in *Journal of Robotics and Mechatronics*, special issue on *Focused areas and future trends in bio-inspired robots*, Vol. 24, No. 4, pp. 595-601, Aug. 2012.

R. W. Sinnet, H. Zhao, and A. D. Ames, "Simulating Prosthetic Devices with Human-Inspired Hybrid Control," in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2011)*, pp. 1723-30, San Francisco, Sep. 2011.