Anthony J. Clark

Last Updated: Jan 2021

Pomona College
Computer Science
333 N. College Way
Claremont, CA 91711

anthonyjclark@gmail.com
anthonyjclark.com
Edmunds Hall 127
+1 (347) 687 - 8421

Navigation

Education

Aug 2016 **Ph.D. in Computer Science**
Department of Computer Science and Engineering, Michigan State University
East Lansing, MI, USA
Automatically Addressing Uncertainty in Autonomous Robots With Computational Evolution
Advisor: Dr. Philip K. McKinley
Outstanding Graduate Student Service Award

Dec 2009 **B.S. in Computer Engineering**
Department of Electrical and Computer Engineering, Kansas State University
Manhattan, KS, USA
Magna cum laude

Professional Experience

Jul 2020 to present **Assistant Professor of Computer Science**
Department of Computer Science, Pomona College
Claremont, CA, USA
Research: mobile robotics • deep learning
Teaching: data structures • algorithms • neural networks

Aug 2016 to May 2020 **Assistant Professor of Computer Science**
Department of Computer Science, Missouri State University
Springfield, MO, USA
Tenure-track assistant professor.

Jan to May 2016 **Computer Science Teaching Assistant**
Department of Computer Science and Engineering, Michigan State University
East Lansing, MI, USA
Administered two lab sections of Introduction to Programming II

May to Jul 2015 **Computer Science Instructor**
Department of Computer Science and Engineering, Michigan State University
East Lansing, MI, USA
Organized and taught Introduction to Programming II (CSE232) during the summer session.

May 2010 to Aug 2016 **Graduate Fellow and Research Assistant**
Department of Computer Science and Engineering, Michigan State University
East Lansing, MI, USA
Addressed optimization, adaptive control, and fabrication of bio-inspired mobile robotic systems.

May to Dec 2009 **Undergraduate Research Assistant**
Autonomous Vehicle Systems Laboratory, Kansas State University
Manhattan, KS, USA
Designed software used to capture images at specified GPS locations with an autonomous aerial vehicle.

Aug 2008 to May 2009 **Undergraduate Research Assistant**
Independent Research with Professor Stewart E. Stanton, Kansas State University
Manhattan, KS, USA
Investigated the fundamentals of convergence of complex solutions in power systems.

May to Aug 2008 **Software Engineer, Intern**
Department of Positioning and Sensors, Garmin International
Olathe, KS, USA
Solved problems associated with positioning error due to antenna performance.

May to Aug 2007 **Undergraduate Research Fellow**
Data Science Summer Institute, University of Illinois at Urbana-Champaign
Urbana-Champaign, IL, USA
Attended lectures covering the fundamentals of data science and worked on a team to create a reverse image search engine.

Aug 2007 to May 2009 **SAS Tutor**
Scholars Assisting Scholars (SAS) Program, Kansas State University
Manhattan, KS, USA
Attended lectures on the subject I was tutoring, provided walk-in, free tutoring consistent with course instruction, and led review sessions prior to exams.

Teaching and Course Development

I use two-stage exams, automated grading tools, instant messaging for communication, and random partner assignments with self-evaluations for all undergraduate courses.

Jan 2021 to present **Neural Networks**
Computer Science Department, Pomona College
Claremont, California, USA
- Topics: Machine learning with nueral networks
- Students per semester: 24

Aug 2020 to present **Algorithms**
- Topics: Asymptotic complexity, graphs, proofs, algorithm paradigms, computational complexity
- Students per semester: 17, 24

Aug to Dec 2020 **Data Structures**
- Topics: Java, OOP, lists, big-o, trees
- Students per semester: 26

Aug to Dec 2020

Independent Study

- Topics: Deep learning, robotics, and graphics
- Students per semester: 1

Jan to May 2020

CSC 125 Introduction to C++ Programming

Computer Science Department, Missouri State University
Springfield, Missouri, USA

- Topics: C++, control flow, conditionals, memory management
- Students per semester: 29

Aug 2016 to May 2020

CSC 325/611 Algorithms and Advanced Data Structures

- Topics: Asymptotic complexity, graphs, proofs, algorithm paradigms, computational complexity
- Students per semester: 27, 24, 23, 28, 29, 37, 41, 45
- Student evaluation ratings (5-point scale): 4.75, 4.67, 4.89, 4.80, 4.89, 4.96, N/A
- Prepare students for job interviews
- This course includes 4 to 6 graduate students per semester
- Developed all course materials
- Created a syntax highlighter for pseudocode to maintain consistency on slides
- Contribute to ABET accreditation through assessments

Aug 2016 to May 2020

CSC 333 Languages and Machines

- Topics: formal languages, automata theory, programming languages, Unix
- Students per semester: 25, 24, 21, 23, 21, 29, 30
- Student evaluation ratings (5-point scale): 4.67, 4.77, 4.86, 4.73, 4.90, 4.87
- Teach students about pair programming using Visual Studio Code Live Share
- Developed all course materials
- Contribute to ABET accreditation through assessments

May 2017 to May 2020

Independent Study

- Mentored 24 independent study projects over the past eight semesters
- Students range from seniors in the honors program to high school students attending Greenwood Elementary
- Several research projects have been published in international computer science conferences

Aug 2017 to Dec 2019

CSC 742 Evolutionary Computing

- Topics: genetic algorithms, evolutionary strategies, genetic programming, statistics
- Students per semester: 14, 14
- Student evaluation ratings (5-point scale): 4.39
- Fall of even years
- Developed all course materials

Jun to Aug 2019

CSC 232 Data Structures

- Topics: C++ programming, array lists, linked lists, trees
- Students per semester: 14
- Student evaluation ratings (5-point scale): 4.89
- Developed course materials with minimal assistance

Jan to May 2019

CSC 790 Deep Learning

- Topics: convolutional neural networks, embeddings, optimization, regularization
- Students per semester: 18
- Student evaluation ratings (5-point scale): 4.85
- Developed all course materials

Aug to Oct 2018

CSC 482 Seminar in Computer Science

- Topics: interview preparation, ethics, teamwork
- Students per semester: 35

Jan to May 2018 **CSC 790 Advanced Robotics**
- Topics: robot operating system (ROS), computer vision, publisher-subscriber software
- Students per semester: 14
- Developed all course materials

May to Jul 2015 **CSE 232, Introduction to Programming II**
Department of Computer Science and Engineering, Michigan State University
East Lansing, MI, USA
- Students per semester: 56
- Student evaluation ratings (5-point scale): 4.61
- Develop and present lectures covering introductory programming concepts using C++
- Mentor and coordinate three teaching assistants

Awards, Honors, and Certificates

Oct 2018 **Outstanding Reviewer**
Elsevier

May 2018 **Faculty Excellence in Teaching**
College of Natural and Applied Sciences, Missouri State University
Nominated by the Computer Science Department and selected by the college awards committee.

Aug 2017 **Master Advisor**
Missouri State University
Completed the Advising Basics Workshop and the Master Advisor Workshop at Missouri State University. These workshops are day-long training sessions.

Jan 2017 **Cultural Consciousness in the Classroom: Certificate of Participation**
Missouri State University
Completed training for recruiting and retaining low-income students from historically underrepresented groups including first generation students.

May 2016 **Outstanding Graduate Student Service Award**
Department of Computer Science, Michigan State University

Sep 2013 **Best Paper Award**
Workshop on Evolutionary and Reinforcement Learning for Autonomous Robot Systems
Matthew J. Rose, Anthony J. Clark, Jared M. Moore, and Philip K. McKinley. Just Keep Swimming: Accounting for Uncertainty in Self-Modeling Aquatic Robots. In Proceedings of the 6th International Workshop on Evolutionary and Reinforcement Learning for Autonomous Robot Systems, Taormina, Italy, September 2013.

Jul 2012 **Best Paper Award**
ALIFE Conference, Behavior and Intelligence Track
Anthony J. Clark, Jared Moore, Jianxun Wang, Xiaobo Tan, and Philip McKinley. Evolutionary design and experimental validation of a flexible caudal fin for robotic fish. In Proceedings of the Thirteenth International Conference on the Synthesis and Simulation of Living Systems, East Lansing, Michigan, USA, pages 325-332, July 2012.

Jan 2012 **Honorable Mention: Graduate Research Fellowship Program**
National Science Foundation

Aug 2010 **Top Up Graduate Fellowship**
NSF BEACON Center
Nominated by faculty at Michigan State University. This award was for $5,000 per year.

Aug 2010 **University Enrichment Fellowship**
Michigan State University
Nominated by the Computer Science Graduate Program at Michigan State University. This award guaranteed a research assistantship for six years.

Dec 2009 **Graduated magna cum laude**
Kansas State University

Aug 2008 **Garmin Scholarship**
Garmin International

Publications

Student authors are underlined.

Jul 2020 **MorphWorld: A State Transition Simulator**
Matthew Shan, Jared M. Moore, and **Anthony J. Clark**
Conference on Artificial Life (ALIFE 2020), Montreal, CA (Remote Conference).
DOI: 10.1162/isal_a_00253

Sep 2019 **Comparing CNN Inputs for Terrain Classification Using Simulation**
Anthony J. Clark, Jesse Simpson, and Jared Hall
IEEE Transdisciplinary AI (TransAI 2019), Laguna Hills, California, USA.
DOI: 10.1109/TransAI46475.2019.00015

Sep 2019 **Construct of Sarcasm on Social Media Platform**
Dipto Das and **Anthony J. Clark**
IEEE International Conference on Humanized Computing and Communication (HCC 2019), Laguna Hills, California, USA. DOI: 10.1109/HCC46620.2019.00023

Sep 2019 **Satire vs Fake News: You Can Tell by the Way They Say It**
Dipto Das and **Anthony J. Clark**
IEEE Transdisciplinary AI (TransAI 2019), Laguna Hills, California, USA.
DOI: 10.1109/TransAI46475.2019.00012

Sep 2019 **Understanding the Attention Model of Humans in Sarcastic Videos**
Dipto Das, Md Forhad Hossain, and **Anthony J. Clark**
IEEE Transdisciplinary AI (TransAI 2019), Laguna Hills, California, USA.
DOI: 10.1109/TransAI46475.2019.00022

Jul 2019 **Improve Quadrupedal Locomotion With Actuated or Passive Joints?**
Jared M. Moore and **Anthony J. Clark**
Conference on Artificial Life (ALIFE 2019), Newcastle, United Kingdom.
DOI: 10.1162/isal_a_00221

Dec 2018 **Evolving Controllers for a Transformable Wheel Mobile Robot**
Anthony J. Clark, Keith A. Cissell, and Jared M. Moore
Complexity. DOI: 10.1155/2018/7692042

Dec 2018 **An Ensemble of Face Recognition Algorithms for Unsupervised Expansion of Training Data**
Jeffrey Dale and **Anthony J. Clark**
International Conference on Computational Science and Computational Intelligence (CSCI 2018), Las Vegas, Nevada, USA. DOI: 10.1109/CSCI.2018.00072

Oct 2018 **Sarcasm Detection on Facebook: A Supervised Learning Approach**
Dipto Das and **Anthony J. Clark**
International Conference on Multimodal Interaction Adjunct (ICMI 2018), Boulder, Colorado, USA. DOI: 10.1145/3281151.3281154

Sep 2018 **Sarcasm Detection on Flickr Using a CNN**
Dipto Das and **Anthony J. Clark**
International Conference on Computing and Big Data (ICCBD 2018), Charleston, South Carolina, USA. DOI: 10.1145/3277104.3277118

Jul 2018 **Review: A Web-Based Simulation Viewer for Sharing Evolutionary Robotics Results**
Anthony J. Clark and Jared M. Moore
Genetic and Evolutionary Computation Conference (GECCO 2018), Kyoto, Japan. DOI: 10.1145/3205651.3208292

Jul 2018 **Bend and Flex: Passive Flexibility or Active Control in a Quadruped Animat**
Jared M. Moore and **Anthony J. Clark**
Genetic and Evolutionary Computation Conference (GECCO 2018), Kyoto, Japan. DOI: 10.1145/3205651.3205703

Jul 2018 **Evo-ROS: Integrating Evolution and the Robot Operating System**
Glen A. Simon, Jared M. Moore, **Anthony J. Clark**, and Philip K. McKinley
Genetic and Evolutionary Computation Conference (GECCO 2018), Kyoto, Japan. DOI: 10.1145/3205651.3208269

Dec 2017 **Evolving Adabot: A Mobile Robot With Adjustable Wheel Extensions**
Anthony J. Clark
IEEE Symposium Series on Computational Intelligence (RiiSS 2017), Honolulu, Hawaii, USA. DOI: 10.1109/SSCI.2017.8280979

Jul 2017 **Effect of Animat Complexity on the Evolution of Hierarchical Control**
Jared M. Moore, **Anthony J. Clark**, and Philip K. McKinley
Genetic and Evolutionary Computation Conference (GECCO 2017), Berlin, Germany. DOI: 10.1145/3071178.3071246

Dec 2016 **An Evolutionary Approach to Discovering Execution Mode Boundaries for Adaptive Controllers**
Anthony J. Clark, Byron DeVries, Jared M. Moore, Betty H. C. Cheng, and Philip K. McKinley
IEEE Symposium Series on Computational Intelligence (SSCI 2016), Athens, Greece. DOI: 10.1109/SSCI.2016.7850178

Nov 2015 **Evolutionary Multiobjective Design of a Flexible Caudal Fin for Robotic Fish**
Anthony J. Clark, Xiaobo Tan, and Philip K. McKinley
Bioinspiration & Biomimetics. DOI: 10.1088/1748-3190/10/6/065006

Jul 2015 **Enhancing a Model-Free Adaptive Controller Through Evolutionary Computation**
Anthony J. Clark, Philip K. McKinley, and Xiaobo Tan
Genetic and Evolutionary Computation Conference (GECCO 2015), Madrid, Spain. DOI: 10.1145/2739480.2754762

Dec 2014 **Balancing Performance and Efficiency in a Robotic Fish With Evolutionary Multiobjective Optimization**
Anthony J. Clark, Jianxun Wang, Xiaobo Tan, and Philip K. McKinley
IEEE International Conference on Evolvable Systems (ICES 2014), Orlando, Florida, USA. DOI: 10.1109/ICES.2014.7008744

Jul 2014 **On-Board Evolution of a Model-Free Adaptive Controller for a Robotic Fish**
Anthony J. Clark, Philip K. McKinley, and Xiaobo Tan
Evolution of Physical Systems Workshop, Held in Conjunction With the International Conference on the Synthesis and Simulation of Living Systems (ALIFE 2014), New York City, New York, USA.

Jul 2014 **Evolutionary Robotics on the Web With WebGL and JavaScript**
Jared M. Moore, **Anthony J. Clark**, and Philip K. McKinley
International Conference on the Synthesis and Simulation of Living Systems (ALIFE 2014), New York City, New York, USA.

Jul 2014 **Hold the Spot: Evolution of Generalized Station Keeping for an Aquatic Robot**
Jared M. Moore and **Anthony J. Clark**
International Conference on the Synthesis and Simulation of Living Systems (ALIFE 2014), New York City, New York, USA. DOI: 10.7551/978-0-262-32621-6-ch033

Sep 2013 **Just Keep Swimming: Accounting for Uncertainty in Self-Modeling Aquatic Robots**
Matthew J. Rose, **Anthony J. Clark**, Jared M. Moore, and Philip K. McKinley
International Workshop on Evolutionary and Reinforcement Learning for Autonomous Robot Systems (ERLARS 2013), Taormina, Italy. **Best Paper Award**

Jul 2013 **Evolutionary Optimization of Robotic Fish Control and Morphology**
Anthony J. Clark and Philip K. McKinley
Genetic and Evolutionary Computation Conference (GECCO 2013), Amsterdam, The Netherlands. DOI: 10.1145/2464576.2464593

Jul 2013 **Evolution of Station Keeping as a Response to Flows in an Aquatic Robot**
Jared M. Moore, **Anthony J. Clark**, and Philip K. McKinley
Genetic and Evolutionary Computation Conference (GECCO 2013), Amsterdam, The Netherlands. DOI: 10.1145/2463372.2463402

Jul 2012 **Evolutionary Design and Experimental Validation of a Flexible Caudal Fin for Robotic Fish**
Anthony J. Clark, Jared M. Moore, Jianxun Wang, Xiaobo Tan, and Philip K. McKinley
International Conference on the Synthesis and Simulation of Living Systems (ALIFE 2013), East Lansing, Michigan, USA. **Best Paper Award**
DOI: 10.7551/978-0-262-31050-5-ch043

University Service

Nov 2017 to May 2020 **Robotics Club Advisor**
Given strong student demand, I (and one of our EE faculty) initiated Missouri State University's first robotics club.

Aug 2017 to May 2020 **CSC Representative, CNAS College Council (elected)**
Act upon curricular matters that are referred to it by departments within the college. The College Council approves departmental proposals, rejects and returns proposals to the originating department, or amends and approves proposals.

Aug 2016 to May 2020 **CSC Representative, CNAS Student Recruitment Committee**
Attend recruitment events on the behalf of the college, and make recommendations to the dean regarding recruitment procedures.

Apr 2018 to May 2019 **STEMentors Program Advisor**
Advise the new outreach program, which is directed at providing mentoring for local lower-income schools.

Aug 2016 to Aug 2019 **CSC Representative, CNAS Diversity Committee**
Represent my department at the college level diversity committee. A primary goal for the members of this committee is to improve the retention of students that are considered at risk for either dropping out or transferring. We improve retention through a variety of activities: poster sessions, scholarships, and picnics.

Aug 2017 to May 2019 **ACM Chapter Advisor**
Coordinate ACM study chapter activities, include: scheduling speakers, organizing off-campus activities (e.g., competitions), and recruit volunteers to help at departmental events.

Sep 2018 **Proactive Advisor**
Attend special training sessions on proactive advising techniques so that I can better advise first generation computer science undergraduates. I currently advise ~75 CS students.

Aug 2014 to May 2016 **Coordinator, Computer Science and Engineering Graduate Association (elected)**
Coordinated monthly meetings for graduate students in the Department of Computer Science and Engineering, facilitated communication of Department news and policies, and organized graduate student service opportunities.

Aug 2014 to May 2015 **Graduate Representative, Computer Science and Engineering Graduate Studies and Research Committee (elected)**
Act as a voting member of the GSRC, which establishes academic standards, coordinates graduate course offerings, determines admission standards and policies for financial awards, and evaluates Ph.D. qualifier examinations.

Aug 2013 to May 2014 **Graduate Representative, Computer Science and Engineering Departmental Meetings (elected)**
Act as a voting member at CSE department meetings.

Aug 2007 to May 2009 **Officer, Eta Kappa Nu, Electrical and Computer Engineering at Kansas State University (elected)**

Professional Activities

Reviewer for Journals
Elsevier Robotics and Autonomous Systems
IEEE Transactions on Systems, Man and Cybernetics: Systems
IEEE Transactions on Robotics
Sage Adaptive Behavior
Sage International Journal of Advanced Robotic Systems

Professional Society Memberships
IEEE and ACM

NSF Panelist
Smart and Autonomous Systems
National Robotics Initiative
IIS Robust Intelligence

Jan 2018 to present **Task Force Member**
IEEE Task Force on Evolutionary Developmental Systems and Robotics

Dec 2020 **Reviewer**
IEEE Symposium Series on Computational Intelligence
Canberra, Australia

Apr 2020 **Program Committee Member**
EvoAPPS, International Conference on the Applications of Evolutionary Computation
Seville, Spain

Apr 2018 **Program Committee Member**
EvoROBOT, European Conference on the Applications of Evolutionary Computation
Parma, Italy

Sep 2017 **Abstract and Poster**
IEEE/RSJ International Conference on Intelligent Robots and Systems
Evo-ROS: Integrating Evolutionary Robotics and ROS
Moore, Jared M., Clark, Anthony J., Simon, Glen, McKinley, Philip K. In *2017 IEEE/RSJ International Conference on Intelligent Robots and Systems*.
Vancouver, BC, Canada, September, 2017

Jul 2017 **Workshop Organizer, SimER: Simulation in Evolutionary Robotics Workshop**
Genetic and Evolutionary Computation Conference
Berlin, Germany
Responsibilities: Co-organize a workshop that brought together experts from around the world to discuss the topic of simulation; specifically how we can improve the current state of simulation in ER.

Dec 2014 **Reviewer**
IEEE Symposium Series on Computational Intelligence
Orlando, Florida, USA

Sep 2014 **Reviewer**
IEEE International Conference on Self-Adaptive and Self-Organizing Systems
London, UK

Sep 2013 **Invited Conference Talk: Evolving Aquatic Robots**
The Twelfth European Conference on Artificial Life (ECAL), International Evolution of Physical Systems Workshop (EPS)
Taormina, Italy, September 2013

Sep 2013 **Reviewer**
IEEE International Conference on Self-Adaptive and Self-Organizing Systems
Philadelphia, Pennsylvania, USA

Advising, Mentoring, and Outreach

Nov 2017 to Jan 2020 **First Lego League Team Mentor and Competition Judge**
FIRST
Responsibilities: Mentor one FLL team and judge at a regional competition.

Aug 2016 to May 2020 **Advising Undergraduate and Graduate Researchers**
Missouri State University
Responsibilities: Coordinate and advise from three to six undergraduate and graduate students from different departments every semester.

Jun 2019 **Week-long Summer Coding Camp**
Discover Center and Missouri State University
Responsibilities: Organized and taught a week-long summer coding camp for middle school students.

Jul 2015 **Instructor, Introduction to Evolutionary Robotics**
Introduction to Robotics Engineering Program, Michigan State University
Responsibilities: Presented my research and an explanation of evolutionary robotics to 22 high school students. I introduced a web-based evolutionary robotics simulation platform (BoxCar2D) to the students and in a hands-on laboratory session helped them answer several questions regarding the evolutionary robotics process.

Mar to Jul 2015 **Mentor, Visiting Scholar Program**
Department of Computer Science and Engineering, Michigan State University
Responsibilities: Co-mentored Mr. René Draschwandtner, a visiting Master's student from the University of Applied Sciences in Austria. I worked with Mr. Draschwandtner, Dr. Jared Moore, and Dr. Philip McKinley to study locomotion and grasping behaviors for a snake-like robot using methods from evolutionary robotics.

Sep 2014 **Presenter, 3D Printing Showcase**
Michigan State University Library
Responsibilities: Presented 3D printing technologies and my lab's research as part of outreach directed at undergraduates and the general public.

Aug 2014 **Co-Organizer of Sandbox Session, Evolution-In-Action Software and the Web**
NSF BEACON Center
Responsibilities: Organized an open discussion regarding the application of state-of-the-art web technologies to evolutionary research and outreach projects.

Jul 2014 **Instructor, BEACON High School Summer Residential Program**
W.K. Kellogg Biological Station, Michigan State University
Responsibilities: Presented an overview of evolutionary computation to a group of four high school students interested in STEM fields, and then facilitated their work as they conducted, wrote about, and presented results from their own evolutionary study in a day-long course.

Jul 2014 **Mentor, NSF Research Experience for Teachers Summer Program**
College of Engineering, Michigan State University
Responsibilities: Mentored a local high school engineering instructor, Charles Payson. Over the course of his second summer in the program, Mr. Payson designed, implemented, and presented a web application used to teach evolutionary robotics concepts to K-12 students and the general public. I taught Mr. Payson web-programming skills as well as aided him in developing a curriculum for high school students.

Jul 2014 **Instructor, Introduction to Robotics Engineering**
College of Engineering High School Summer Program, Michigan State University
Responsibilities: Introduced evolutionary robotics to approximately 20 high school students in a tutorial style. The tutorial was based on an interactive web-based simulation environment developed by myself and Jared M. Moore. Students conducted evolutionary experiments in which they evolved robots in simulation.

Feb 2014 **Graduate Student Evaluator**
Undergraduate Research and Arts Forum, Michigan State University
Responsibilities: Provided feedback to undergraduates presenting their research, and scored poster presentations for a competition.

May to Aug 2013 **Mentor, NSF Research Experience for Teachers Summer Program**
College of Engineering, Michigan State University
Responsibilities: Mentored a local high school engineering instructor, Charles Payson. During a six-week program, I aided Mr. Payson in learning C++ programming, evolutionary algorithm development, and creating dynamic simulations. At the end of the program, I assisted Mr. Payson in translating his research into a robotics lesson plan using the VEX robotics platform.

May 2011 to Aug 2013 **Mentor, NSF Research Experience for Teachers Summer Program**
College of Engineering, Michigan State University
Responsibilities: Mentored a local elementary school teacher, Adam Ford, who specializes in computers and robotics. Mr. Ford developed the Biolume environment, which demonstrates evolution 'in-action' using using simple robots. The Biolume project is an outreach exhibit aimed at demonstrating evolutionary principles to the general public.

Funding and Grant Activity

I have contributed to writing, editing, and producing preliminary results for the following grants.

Aug 2019 **Missouri Space Grant Program**
Title: Lunar geologic compass for geologic mapping and surveying
Award: Student Support
Details: NVIDIA awarded a powerful GPU to be used for deep learning research.
PI: Matt McKay and Anthony J. Clark

May 2018 **Missouri State University Summer Faculty Fellowship**
Award: $6,000
Details: Funds were awarded to work on research during the summer term.
PI: Anthony J. Clark

Jul 2018 **NVIDIA GPU Grant Program**
Award: Quadro P6000
Details: NVIDIA awarded a powerful GPU to be used for deep learning research.
PI: Anthony J. Clark

Nov 2016 **Missouri State University Major Equipment Grant**
Amount: $24,000
Details: Funds were utilized to purchase a 3D printer and a CNC mill that will be used by faculty and students in the Departments of Computer Science and Engineering.
PI: Anthony J. Clark

Aug 2013 to May 2014 **Distributed, Onboard Evolution in a Robotic Cloud**
Amount: $168,231
Sponsor: NSF BEACON Center for the Study of Evolution in Action
PI: T. Soule (U. Idaho), Co-PIs: R. Heckendorn (U. Idaho), P. McKinley (MSU), J. Zhan (NCA&T), S. Harrison (NCA&T)

Aug 2011 to May 2014 **II-EN: Evolution Park: An Evolutionary Robotics Habitat for the Study of Crawling, Swimming and Flying Creatures**
Amount: $305,000
Sponsor: NSF, Division Of Computer and Network Systems
PI: P. McKinley, Co-PIs: X. Tan, J. Boughman

Aug 2012 to May 2013 **Understanding and Synthesizing Collective Behavior with Mixed Robotic and Live Fish Schools**
Amount: $169,923
Sponsor: NSF BEACON Center for the Study of Evolution in Action
PI: X. Tan, Co-PIs: P. McKinley, J. Boughman

Aug 2011 to May 2012

Exploiting Robot-Fish Interactions and Evolutionary Computing to Understand and Synthesize Complex Collective Behavior
Amount: $110,642
Sponsor: NSF BEACON Center for the Study of Evolution in Action
PI: X. Tan, Co-PIs: P. McKinley, J. Boughman

Software Contributions

Review, A Visualization Player
Description: Review is a web-based platform for sharing dynamic visualizations. Code, Description

Evolve-a-Robot, An Online Evolutionary Robotics Environment
Description: Evolve-a-Robot is an interactive evolutionary robotics simulation. The project has two goals. The first is to expose K-12 students to evolution and evolutionary computation using an engaging and fun platform. Evolve-a-Robot does this by visualizing the evolution of robotic cars with an easy-to-use interface. And second, to expose enough of the adjustable parameters (i.e. genetic operators, and evolutionary configuration) to make the simulation useful for teaching evolutionary algorithms to undergraduate students. Code, Description

Developer, Biolume: Evolution in Action Art Exhibit
URL: http://adamwbrown.net/biolume-header1-jpg/
Description: The Biolume art exhibit is meant to captivate and inform the general public. The installation will comprise approximately 150 culptural robots that 'evolve' to better interact with patrons. Through interaction with the public, Biolume robots gain energy and are preferentially selected for reproduction to 'replace' less fit neighbors.