adam setapen

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statement

I am a computer scientist and roboticist who is passionate about making software and products that are easy to use and self-improving. With over ten years of concentrated academic research and real-world experience bringing consumer robots to market, I have become an expert in building and programming intelligent electromechanical systems. I thrive in environments that emphasize learning and collaboration, in which I can fully devote my skills to products and causes I care about.

education

Massachusetts Institute of Technology

September 2010 - August 2012

M.S., Media Arts and Sciences, Personal Robots Group @ MIT Media Lab

University of Texas at Austin

August 2005 - May 2010

M.S., Computer Science. concentration in Artificial Intelligence, minor in Cognitive Science B.S., Turing Scholars Honors Computer Science

experience

r-bots, LLC

San Francisco, CA

July 2016 - Present

President, Independent Consultant

- ▶ Rapid prototyping of hardware and software (Python, C, iOS, Android)
- ▶ Clients include Project 100, Momentum Machines, Formlabs, FamBots

AltSchool, PBC

San Francisco, CA

October 2015 - July 2016

Lead Hardware Engineer

- ▶ Created and maintained hardware devices to help educators and students in K-8 classrooms
- ▶ Led the hardware team to build prototypes of cameras, microphones, smart tables, wearables

3D Robotics, Inc.

Berkeley, CA

September 2014 - October 2015

Roboticist

- Scene Awareness Lead, designing and implementing computer vision tracking algorithms
- ▶ Implemented a hardware-accelerated iOS video pipeline (h264 RTP) and OTA firmware update system
- ▶ Embedded systems integration, development of test software for use in manufacturing and production

Romotive, Inc.

San Francisco, CA

October 2012 - March 2014

Roboticist

- ▶ Technical lead on machine learning and human-robot interaction
- Designed and implemented a computer vision framework for iOS harnessing OpenCV and GPU filters
- ▶ Lead the design, implementation, and documentation of a robotics SDK for iOS developers
- ▶ Implemented bleeding-edge facial detection (GPU based Viola-Jones), facial recognition (local binary patterns), persistent memory system, scripted interaction environment, audio pitch recognition and synthesis

Formlabs, Inc.

Cambridge, MA

June 2012 - September 2012

Software Engineer

- ▶ Designed and implemented the UI and UX for a high-resolution 3D printer
- ▶ C++ development working on models of complex 3D geometries using OpenGL ES 2.0

MIT Media Lab

Cambridge, MA

September 2010 - August 2012

Research Assistant

- Focus on cloud-based robot architectures, affective robotics, and applied machine learning
- ▶ Built and programmed Dragonbot, an expressive and inexpensive robot platform powered by an Android phone. Dragonbot was used to secure a \$10M NSF grant for socially assistive robots.
- ▶ Helped build Playtime Computing, an interactive and immersive robotic play-space for children
- ▶ Rapid prototyping of electromechanical systems

University of Texas at Austin

Austin, TX

August 2008 - July 2010

Graduate Research Assistant

- Focus on teaching robots how to move through human training, using motion capture to "puppet" robots
- ▶ Emphasis on machine learning by combining reinforcement learning with learning from demonstration
- Worked under Peter Stone in the Learning Agents Research Group
- ▶ Member of AustinVilla RoboCup Team, Standard Platform League (using Aldebaran Nao Humanoids)
- ▶ Member, Reinforcement Learning Reading Group and Agents that Learn from Humans Reading Group

TRACLabs, Inc.

Houston, TX

May 2009 - January 2010

Intern/Programmer

- Designed and built TRACBot -- an autonomous mobile robot to showcase planning algorithms
- ▶ Design and partial implementation of software architecture using Player/Stage/Gazebo/ROS
- ▶ Sensor framework included 3D time-of-flight cameras, Laser rangefinders, thermal sensors, distance/ bump sensors, microphones, and 2D cameras

Amazon.com

Seattle, WA

May 2008 - August 2008

Software Development Engineer Intern

- ▶ Implemented a major student-oriented textbook promotion in the Amazon Prime group
- ▶ Experience working with service-oriented architectures (Java/C++), dynamic page generation
- ▶ Dealt with large-scale reliability and latency constraints
- ▶ Project lead to more than 50,000 new Prime subscriptions

University of Virginia

Charlottesville, VA

Summer 2007

Department of Computer Science / Virginia Medical Center

Computer Applications in Medicine, NSF Research Experience for Undergraduates

▶ Supervised machine learning on large corpus of accelerometer data to look for anomalies in the gait of atrisk geriatric patients, using unobtrusive and inexpensive hardware. (Under Dr. Mark Williams, Gerontology)

Applied Research Laboratories

Austin, TX

June 2006 - May 2007

Senior Student Associate

- ▶ Research and Development using Java, Java3D, CORBA, granted DOD Secret security clearance
- ▶ Prototyped 3D desktop environments, created various testing utilities and front-end widgets

teaching

Intro to Robotics, K-2, AltSchool

Fall 2015 - Present

- ▶ Creating curriculum and teaching hands-on introduction courses to robotics
- ▶ Built line-followers and NERF robots from scratch, prototyping with Makey Makeys, Scratch, Lego

Teaching Assistant to Neil Gershenfeld

- ▶ Helped to run and teach the hands-on crash course on personal fabrication
- ▶ Taught students skills such as computer-controlled cutting, molding and casting, basic electronics

publications

Adam Setapen. **Creating Robotic Characters for Long-Term Interaction.** *Masters thesis, MIT. Readers: Cynthia Breazeal, Rosalind Picard, David DeSteno.*

Nadia Cheng, Maxim Lobovsky, Steven Keating, Adam Setapen, Katy Gero, Anette Hosoi, and Karl lagnemma. **Design and Analysis of a Robust, Low-cost, Highly Articulated Manipulator Enabled by Jamming of Granular Media.** 2012 IEEE International Conference on Robotics and Automation (ICRA 2012).

Natalie Freed, Jie Qi, Adam Setapen, Hayes Raffle, Leah Buechley and Cynthia Breazeal. **Sticking Together: Handcrafting Personalized Communication Interfaces.** 2011 ACM International Conference on Interaction Design and Children (IDC) 2011.

W Bradley Knox, Adam Setapen, and Peter Stone. **Reinforcement Learning with Human Feedback in Mountain Car.** In *AAAI 2011 Spring Symposium - Help Me Help You: Bridging the Gaps in Human-Agent Collaboration.*, Palo Alto, CA - March 2011.

Adam Setapen, Michael Quinlan, and Peter Stone. **MARIONET: Motion Acquisition for Robots through Iterative Online Evaluative Training (Extended Abstract).** In *The Ninth International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, May 2010.

Adam Setapen, Michael Quinlan, and Peter Stone. **Beyond Teleoperation: Exploiting Human Motor Skills with MARIONET.** In *AAMAS 2010 Workshop on Agents Learning Interactively from Human Teachers (ALIHT),* Toronto, Canada - May 2010.

Adam Setapen. **Exploiting Human Motor Skills for Training Bipedal Robots.** *Undergraduate Honors Thesis/Technical Report HR-09-02.* Adviser: Peter Stone.

invited talks

360iDev 2013, Denver, 09.09.2013, *Your Code Just Ran Across The Floor.* **Droidcon 2012**, Berlin. 03.14.2012. *The Robot In Your Pocket.*

technical chops

Relevant Graduate Coursework:

Autonomous Robotics, Machine Learning, Cognitive Science, Natural Language Processing, Object Recognition, Affective Computing, Computational Neuroscience, Autonomous Multiagent Systems, Algorithmic Game Theory, Cryptography, Algorithms, Programming Languages, How to Make (almost) Anything, Sensor Applications for Interactive Environments, Technologies for Creative Learning

Programming Languages	Frameworks	Design	Electronics	Fabrication
C, C++, Python, Java, Swift, Objective-C, Lisp	ROS, iOS, Android, MATLAB, Eclipse	SolidWorks, AutoCAD, Rhino, Maya, Adobe Suite, Eagle PCB	Sensor prototyping and integration, power regulation and management, motor controllers	CNCs, mills, lathes, laser cutters, waterjets, 3D printers (SLA, SLS, FDM, MJM), mold making