Morgan Pope

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Summary: Mechatronic Design Engineer with PhD in agile robots that jump, perch, fly, and climb. I build intelligent systems using both programming and mechanical design.

Education

2016 (est.)	PhD, Mechanical Engineering	Stanford University
2013	MS, Mechanical Engineering	Stanford University (3.94 GPA)
2011	BS, Engineering Sciences (EE focus)	Harvard University (*cum laude*)

Experience

2011-present Research Assistant - Biomimetics and Dextrous Manipulation Lab

Perching and Climbing on Concrete/Stucco: Invented SCAMP, the first robot capable of flying, perching passively, climbing, and taking off again. Designed and fabricated an 11 gram mechanism that lets a 30 gram quadrotor perch on rough surfaces, climb, catch itself when it falls, and take off again, all using only onboard sensing and computation.

Perching on Windows with Gecko-Inspired Adhesives: Led successful three-University effort to make quadrotors perch and take off from vertical glass surfaces using gecko-inspired adhesives. Wrote successful funding application. Derived/verified scaling laws, wrote failure recovery routine. Work featured on NYT, Popular Science, etc.

Jumping and Gliding: Helped create a "Jumpgliding" robot which travels farther than a conventional jumping robot through the clever use of aerodynamics. Patent pending on this robot's magnetic latch design. Work featured on Gizmag, Discovery, etc.

Spring 2016 Teaching Assistant - ME 210: Introduction to Mechatronics

Mentored 30 teams in troubleshooting design/fabrication of autonomous robots. Designed project, helped build infrastructure, taught one class.

2010-2011 Research Assistant - Harvard Microrobotics Lab

Wing Fiducial Tracking: Developed automated marker tracking software to capture Robobee wing kinematics at high spatial and temporal resolution

Fall 2010 Teaching Assistant - ES 181: Thermodynamics

Led problem sessions and office hours, wrote and graded homework and exams.

Coursework

ME 218 (A,B,C): Year-long Mechatronics course. Projects included autonomous triangulation and making a continuously rotating boat drive in straight lines. CS 107: Computer Architecture. Programming Abstractions, Scientific Computing, Computer Vision. Design for Manufacturing, Manufacturing Processes, Materials, Supply Chain Management. Dynamics, Signals, Analog Circuit Design.

Skills

Rapid prototyping, CAD (Solidworks), programming (C, C++, Matlab, Python, Assembly), shop tools (mill, lathe, etc), circuit design, fluent conversational Mandarin Chinese (lived in Taiwan 2 years), public speaking, visual communication of data, MS Office, Keynote