

David C. Moore

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Education:

- 2003-2008 **Massachusetts Institute of Technology** Cambridge, MA
M.S., 2005, Electrical Engineering and Computer Science
GPA: 5.0 (out of 5.0)
- 1999-2003 **California Institute of Technology** Pasadena, CA
B.S., 2003, Electrical Engineering
GPA: 4.1 (out of 4.0) GRE Scores: Quantitative, 800; Analytical, 800; Verbal, 630

Key Skills: C, C++, Linux, iOS, Objective-C, Python, Lua, image processing, embedded systems, Linux kernel, OpenGL

Recent Professional Experience:

- 2009 to present **DreamWorks Animation SKG, Inc.** **Software Engineer** Glendale, CA
Developed features for the iPhone application "Ptch" related to photo and video management, external API support (Google Photos, Twitter), geolocation, and data upload optimization.
Designed and implemented common libraries for the representation and interchange of data in DreamWorks' suite of proprietary animation tools.
- Fall 2008 **SnapNow Inc.** **Chief Scientist** Glendale, CA
Implemented a custom object recognition algorithm for recognizing products and advertisements using cellphone cameras and matching against a database with millions of images.
- Summer 2008 **Google** **Software Engineering Intern** Mountain View, CA
Developed an automated missing page detector for the Book Search product.

Research Experience:

- 2003-2008 **Massachusetts Institute of Technology** Cambridge, MA
Supervisors: Prof. John Leonard, Prof. Seth Teller
Research Area: **The DARPA Urban Challenge**
Topic: Built a car that can drive itself in an urban environment. My contributions were computer vision-based lane finding, high-level route planning, and low-level software infrastructure.
- Supervisors: Prof. John Leonard, Prof. Daniela Rus, Prof. Seth Teller
Research Area: **Sensor Networks and Mobile Robotics**
Topic: Developed a distributed algorithm for localization of wireless sensor networks.
- 2002-2003 **California Institute of Technology** Pasadena, CA
Supervisors: Prof. Pietro Perona, Prof. Richard Murray
Research Area: **Computer Vision and Control Systems**
Topic: Implemented a real-time system for human detection and tracking based on a machine learning approach to characterizing human motion. Designed a robust networking toolkit on QNX for telemetry control and coordination of fan-propelled vehicles over a lossy wireless network.

Past Professional Experience:

- Summer 2002 **NVIDIA Corporation** **Software Engineering Intern** Santa Clara, CA
Developed an OpenGL driver intended for embedded systems under the VxWorks operating system. Applications include the aviation, military, and automotive industries.
- Summer 2001 **Evolution Robotics, Inc.** **Software Engineering Intern** Pasadena, CA
Designed and implemented low-level hardware-control software for a mobile robot built on top of Linux. The robot is wirelessly linked via 802.11b wireless ethernet, and I designed the software API for low-level sensor and motor control.

Summer 2000 **Institute for Defense Analysis, Center for Computing Sciences** Bowie, MD
Investigated the use of CPU virtualization on the Intel x86 architecture as a means of maintaining information security.

Teaching Experience:

2006 **Massachusetts Institute of Technology** Cambridge, MA
Teaching Assistant (TA) for course 6.142, Robotics: Science and Systems II, instructed by Profs. Teller and Rus.

2002-2003 **California Institute of Technology** Pasadena, CA
Teaching Assistant (TA) for course CS 134, Operating Systems and Compilers, instructed by Prof. Jason Hickey.

Honors and Awards:

2004 Best Paper Award, ACM Conference on Embedded Networked Sensor Systems (SenSys)
2003 National Science Foundation Graduate Research Fellowship
2002 Election to the Tau Beta Pi engineering honor society, Caltech chapter
2002 Caltech Upperclass Merit Scholarship: \$22,000 awarded by Caltech for senior year tuition
1999 Axline Merit Scholarship of \$10,000/year awarded by Caltech for all 4 years of study
1999 2nd Place Winner, Intel Science Talent Search, \$40,000 scholarship
1997 Eagle Scout

Publications:

D. Moore, et al. "Simultaneous Local and Global State Estimation for Robotic Navigation." Proceedings of IEEE International Conference on Robotics and Automation (ICRA). Kobe, Japan. May 2009.

J. Leonard, et al. "A Perception-Driven Autonomous Urban Vehicle." Journal of Field Robotics. Volume 25, Issue 10. October 2008.

A. Huang, D. Moore, M. Antone, E. Olson, S. Teller. "Multi-Sensor Lane Finding in Urban Road Networks." Proceedings of Robotics: Science and Systems. Zurich, Switzerland. June 2008.

D. Moore, J. Leonard, D. Rus, S. Teller. "Robust Distributed Network Localization with Noisy Range Measurements." Proceedings of the Second ACM Conference on Embedded Networked Sensor Systems (SenSys '04). Baltimore, MD. November 3-5, 2004

D. Moore, "A Real-World System for Human Motion Detection and Tracking," Undergraduate Thesis, May 2003.

T. Chung, L. Cremean, W.B. Dunbar, Z. Jin, E. Klavins, D. Moore, A. Tiwari, D. van Gogh, S. Waydo, "A Platform for Cooperative and Coordinated Control of Multiple Vehicles: The Caltech Multi-Vehicle Wireless Testbed," Conference on Cooperative Control and Optimization, 2002.

Free Software Projects:

libiptcdata, a C library for manipulating IPTC metadata (e.g. captions, keywords) in digital photos.

My role: Sole developer

<http://libiptcdata.sourceforge.net>

libdc1394, a C library for capturing frames from Firewire (IEEE 1394) digital cameras.

My role: Developer

<http://damien.douxchamps.net/ieee1394/libdc1394/>

Lightweight Communications and Marshalling (LCM), a library for high bandwidth data exchange between multiple processes, intended for robotics applications.

My role: Developer

<http://lcm.googlecode.com/>

camunits, a C library and GUI for easy construction of video processing pipelines intended for computer vision applications.

My role: Developer

<http://camunits.googlecode.com/>

The Linux kernel, Firewire stack

My role: Contributor (improved support for isochronous streaming in recent kernel versions)

<http://www.linux1394.org/>