

Aparna Dhinakaran

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[Github: AparnaDhinakaran](https://github.com/AparnaDhinakaran)

EDUCATION

2012-2016 BSc in ELECTRICAL ENGINEERING AND COMPUTER SCIENCE
University of California, Berkeley

AWARDS & HONOURS

LAWLER	EECS Department Award for service to disadvantaged students
PATTERSON	1 of 4 UC Berkeley Hutto Patterson Fellows for STEM leadership
CREU	1 out of 15 team finalists nationwide for CRA-W research funding
REGENTS	Merit-based scholarship awarded to top 1.5% of UC Berkeley applicants
LEADERSHIP	CAL Alumni Association's Most Prestigious Merit-Based Scholarship
AP	National AP Scholar awarded to high-achieving high school students

RELEVANT COURSEWORK

CS 294	Fine Grained Complexity	EE 126	Probability and Random Processes
CS 189	Machine Learning	CS 188	Artificial Intelligence
CS 170	Algorithms	CS 194	Internet of Things

RESEARCH EXPERIENCE

SEPT 2015 - CURRENT	<p>Research Assistant with Prof. Claire Tomlin, UC Berkeley</p> <p><i>Multi-Vehicle Unstructured Collision Avoidance</i></p> <p>Developing safety guarantees for n-vehicles in unstructured flight. We employ Hamilton-Jacobi (HJ) reachability to detect potential conflicts among vehicles, provide control to cooperatively resolve multi-vehicle conflicts, and allow vehicles not in potential conflicts to move in an unrestricted manner.</p> <p><i>Unmanned Aerial Vehicle Traffic Management</i></p> <p>Working on hardware implementation of platooning, a structural design to model groups of UAVs in a single-file formation. The proposed implementation has several liveness controllers and a safety controller, based on HJ reachability. Employing Crazyflie 2.0 Testbed for proof of concept.</p> <p><i>Regression-based Inverter Control for Optimal Power Flow & Voltage Regulation</i></p> <p>Working on systematic and data-driven approach to determine reactive power inverter output as a function of local measurements for 3-Phase decentralized systems.</p> <p><i>Cal Renewable and Adaptive Energy Micro-Grid Analysis</i></p> <p>Working on spatial analytics of distributed energy generation, micro-grid economic analysis, and energy disaggregation to address the energy challenges facing communities in the developing world.</p>
AUG 2014 - MAY 2015	<p>Research Assistant with Prof. Tapan Parikh, UC Berkeley</p> <p><i>Information Technologies for Agriculture</i></p> <p>Designed smart rainfall measurement system to increase Kenyan smallholder farmers' access to markets. Analyzed data for Avaaj Otalo, a voice-based social media for Gujarat farmers.</p>
FEB 2013 - MAY 2014	<p>Research Assistant with Prof. Alice Agogino, UC Berkeley</p> <p><i>Smart Lighting on the Smart Grid</i></p> <p>Developed a new lighting system, that builds a predictive model of a room to effectively allow lights to adapt to occupant demands. Developed indoor lighting inverse model, linear regression models and user-friendly installation program.</p>

PUBLICATIONS

Chandrayee Basu, Julien J Caubel, Kyunam Kim, Elizabeth Cheng, Aparna Dhinakaran, Alice Agogino, and Rodney Martin. **Sensor-based predictive modeling for smart lighting in grid-integrated buildings.** *IEEE Sensors Journal*, 2014.

Chandrayee Basu, Benjamin Chen, Jacob Richards, Aparna Dhinakaran, Alice Agogino, and Rodney Martin. **Affordable and personalized lighting using inverse modeling and virtual sensors.** In *SPIE*, 2014.

TEACHING EXPERIENCE

FALL '13 Teaching Assistant for **Math 53** — **Multivariable Calculus**.
SPRING '14 Teaching Assistant for **Math 54** — **Linear Algebra & Differential Equations**.

INDUSTRY EXPERIENCE

DOTE SF-Based Mobile App Startup revolutionizing shopping. Worked on
WINTER '15 backend team.

APPLE Emerging Technologies Team. Confidential project. Selected as a top
SUMMER '15 intern to present my summer project to Niall O'Connor, Apple CIO.

TUBEMOGUL Developed clickbot detection algorithm for differentiating between hu-
SUMMER '14 mans and bots for advertising campaigns.

TECHNICAL SKILLS

FLUENCY Python, Java, C, C++, Matlab, Ruby, Scheme, L^AT_EX.
SOFTWARE Unix/Linux, Robot Operating System (ROS), MongoDB, Hadoop
MapReduce, Apache Hive, Numpy, Scipy.

OUTREACH

A.W.E Mentored younger women in Association of Women in EECS
NERDS Mentored & lead sections for STEM students from diverse backgrounds.
GIRLS WHO Lead weekly computer science lessons for Oakland high school girls
CODE