Aparna Dhinakaran

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EDUCATION

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

AWARDS & HONOURS

REGENTS	Highest Undergraduate Honour offered by UC Berkeley
LAWLER	EECS Department Award for service to disadvantaged students
CREU	Awarded research funding from Computing Research Association
LEADERSHIP	CAL Alumni Association's Most Prestigious Merit-Based Scholarship

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

Research Assistant with Prof. Claire Tomlin, UC Berkeley

Multi-Vehicle Unstructured Collision Avoidance

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.

Unmanned Aerial Vehicle Traffic Management

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.

Regression-based Inverter Control for Optimal Power Flow & Voltage Regulation

Working on systematic and data-driven approach to determine reactive power inverter output as a function of local measurements for 3-Phase decentralized systems.

Cal Renewable and Adaptive Energy Micro-Grid Analysis

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.

AUG 2014 - MAY 2015

Research Assistant with Prof. Tapan Parikh, UC Berkeley

Information Technologies for Agriculture

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.

FEB 2013 - MAY 2014

Research Assistant with Prof. Alice Agogino, UC Berkeley

Smart Lighting on the Smart Grid

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.

TEACHING EXPERIENCE

2013-2014	Teaching Assistant for **Math 53 — Multivariable Calculus**.

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.

Work Experience

Dote
Winter '15

SF-Based Mobile App Startup revolutionizing shopping. Worked on the internal dashboard.

Apple
Summer '15

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

TubeMogul
Summer '14

Developed clickbot detection algorithm for differentiating between humans and bots for advertising campaigns.