Deeban Ramalingam

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United States of America

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EDUCATION

Columbia University (Sept 2021 - present)
Ph.D. Computer Science (with Advanced Standing). Advisor: Professor Dr. Mohammed AlQuraishi.
Conduct research related to machine learning and biology in the Columbia University AlQuraishi Laboratory.

University of California Los Angeles (Sept 2019 - June 2021)
M.S. Computer Science (with Thesis)
Thesis: Multi-modal Medical Imaging Registration. Advisor: Professor Dr. Fabien Scalzo.
GPA: 3.957 / 4.000.
Won UCLA Engineering Achievement Award for Student Welfare.

Cornell University (Aug 2014 - May 2018)
B.S. Computer Science, with Departmental Honors, *Cum Laude Designation*
Minor in Pure Mathematics
Meinig Family Cornell National Scholar
McMullen Cornell Engineering Dean Scholar
Thomas Dinwoodie McMullen Scholar

Relevant Coursework

Computer Science
Artificial Intelligence, Machine Learning, Computational Genetics and Bioinformatics, Medical Imaging, Computer Vision, Natural Language Processing, Algorithms, Operating Systems, Computer Animation, Computational Learning Theory, Distributed Systems

Electrical and Computer Engineering
Digital Signal and Image Processing, Detection and Estimation in Communication, Signals and System Analysis, Probability and Random Signals

Mathematics
Linear Algebra, Random and Stochastic Processes, Differential Equations, Multivariable Calculus

Research Interests
Machine Learning (applications in Communication and Radar Systems, Computer Vision, Biology, Healthcare, Audio Recognition, Cloud Computing, and Economics), Networked Distributed Systems and Cloud Computing

SOCIETIES / HONORS

Columbia University Ph.D. in Computer Science Advanced Standing Award	Aug 2021
University of California-Los Angeles Engineering Achievement Award for Student Welfare	May 2021
University of California-Los Angeles Honor Society	Apr 2020 - present
Meinig Family Cornell National Scholar (approx. 50 students selected/yr)	Aug 2014 - May 2018
McMullen Cornell Eng. Dean Scholar (approx. 50 students selected/yr)	Aug 2014 - May 2018
Thomas Dinwoodie McMullen Scholar (1 student selected/yr)	Sep 2017 - May 2018
Cornell Engineering Dean's List for High GPA (5 times)	
Golden Key International Honor Society (awarded to top 15% of graduating class)	

PUBLICATIONS

1. B. Jamali, **D. Ramalingam** and A. Babakhani, "Intelligent Material Classification and Identification Using a Broadband Millimeter-Wave Frequency Comb Receiver," in IEEE Sensors Letters, vol. 4, no. 7, pp. 1-4, July 2020, Art no. 3501104, doi: 10.1109/LSENS.2020.3002715.

2. H. Rahmani, M. M. Archang, B. Jamali, M. Forghani, A. M. Ambrus, **D. Ramalingam**, Z. Sun, P. O. Scumpia, H. A. Coller and A. Babakhani, "Towards a Machine-Learning-Assisted Dielectric Sensing Platform for Point-of-Care Wound Monitoring," in IEEE Sensors Letters, vol. 4, no. 6, pp. 1-4, June 2020, Art no. 5501004, doi: 10.1109/LSENS.2020.2999031.
3. **D. Ramalingam**, C. H. Yoon and F. Poitevin, "Building Latent Spaces to Sort Massive X-ray Diffraction Datasets," in Stanford-SLAC National Accelerator Laboratory, Aug 2020. Poster published in Stanford-SLAC website.
4. B. Jamali, **D. Ramalingam** and A. Babakhani, "Intelligent Material Classification with a Silicon-Based Millimeter-Wave Frequency Comb Receiver," in UCLA, 2020. Poster published on my IEEE Research Paper.
5. B. Jamali, **D. Ramalingam** and A. Babakhani, "Intelligent Material Classification and Identification Using a Broadband Millimeter-Wave Frequency Comb Receiver," 2020 IEEE SENSORS, 2020, pp. 1-1, doi: 10.1109/SENSORS47125.2020.9278697.
6. **Ramalingam, D.** (2021). Multi-modal Medical Imaging Registration. UCLA. ProQuest ID: Ramalingam_ucla_0031N_19625. Merritt ID: ark:/13030/m5k41vd4. Retrieved from https://escholarship.org/uc/item/6d50432c.
7. Peck A, Chang HY, Dujardin A, **Ramalingam D**, Uervirojnangkoorn M, Wang Z, Mancuso A, Poitevin F, Yoon CH. Skopi: a simulation package for diffractive imaging of noncrystalline biomolecules. J Appl Crystallogr. 2022 Jul 15;55(Pt 4):1002-1010. doi: 10.1107/S1600576722005994. PMID: 35974743; PMCID: PMC9348890.

RESEARCH / INDUSTRIAL EXPERIENCE

Columbia University AlQuraishi Laboratory, New York, NY — Sept 2021 - present
Graduate Research Assistant under Dr. Mohammed AlQuraishi
- Conduct research related to machine learning and biology

Procter & Gamble R&D, Mason, OH — May 2022 - Sept 2022
R&D Data Science PhD Intern under Mr. Rob Baker
- Developed Machine Learning methods for understanding consumer behavior with haircare products

Idaho Digital Learning Academy, Boise, ID — Jan 2021 - July 2021
Remote Contracted Software Consultant from CA
- Developed software to complement online education for the state of Idaho

Stanford-SLAC National Accelerator Laboratory, Menlo Park, CA — June 2020 - Sept 2020
LCLS Researcher (Intern) under Dr. Chun Yoon & Dr. Frederic Poitevin
- Developed Machine Learning methods for X-ray Free-electron Lasers
- Presented to Dr. Mike Dunne, Director of the Linac Coherent Light Source (LCLS)
- Poster published in Stanford-SLAC website
- Slide submitted to Stanford-SLAC for the Science Advisory Committee talk

UCLA Integrated Sensors Laboratory, Los Angeles, CA — Sept 2019 - June 2020
Graduate Research Assistant under Dr. Aydin Babakhani & Dr. Babak Jamali
- Developed Machine Learning methods for millimeter-wave sensing and wound monitoring
- Published 2 papers in the IEEE Sensors Letters
- Both publications have also been posted in the UCLA Integrated Sensors Laboratory website (Department of Electrical and Computer Engineering)
- A poster was published on my IEEE Research Paper
- My IEEE Research Paper was published in the 2020 IEEE SENSORS Conference

UCLA Bio- & Nanophotonics Laboratory, Los Angeles, CA — Sept 2019 - Dec 2019
Graduate Research Assistant under Dr. Aydogan Ozcan & Dr. Yair Rivenson
- Optimized the preprocessing of biological image data for Machine Learning methods
- Will be listed as a co-author in a future publication

Stanford-SLAC National Accelerator Laboratory, Menlo Park, CA May 2019 - Aug 2019
CryoEM and Bioimaging Researcher (Intern) under Dr. Cornelius Gati & Dr. Frederic Poitevin
- Developed Machine Learning methods for Cryogenic Electron Microscopy

Idaho Digital Learning Academy, Boise, ID May 2019 - Sept 2019
Remote Part-time Contracted Software Consultant from CA
- Developed software to complement online education for the state of Idaho

Microsoft Azure Networking R&D, Redmond, WA Aug 2018 - Mar 2019
Software Engineer
- Developed software for the networking infrastructure of the Microsoft Azure cloud

Microsoft Azure Networking R&D, Redmond, WA May 2017 - Aug 2017
Software Engineer (Intern) under Mr. Geoff Outhred
- Designed Multi-tenant Container-based Application Layer Load Balancing-as-a-Service (*https://goo.gl/pu25TN*), presented to Azure Networking
- Proof-of-concept trumped existing application load balancers in functionality and speed

NVIDIA, Santa Clara, CA May 2016 - Aug 2016
Software Engineer (Intern) under Mr. Vijay Ramadoss
- Designed debugging tool to communicate with HyperVisors on NVIDIA Grid Network (NGN) cloud compute clusters
- Designed automation pipeline to handle efficient deployments to storage nodes in NGN

Hewlett-Packard R&D Laboratory, Boise, ID May 2015 - Aug 2015
Software Engineer (Intern) under Mr. Roger Baird
- JetAdvantage Management (JAM) allows customers to centrally, remotely manage their fleet of print devices over a network
- Developed feature for JAM that allows customers to make changes to the configuration of any JAM client, critical for effective communication between JAM in the cloud and JAM client within customer corporate firewall

Cornell University, Ithaca, NY Jan 2015 - May 2015
Undergraduate Researcher under Dr. Graeme Bailey (Now at University of Oxford, U.K.)
Masters in Engineering Project: Media Enabled Research Interface and Database (MERID)
- MERID enables researchers to run surveys and research investigations with respondents
- Investigations dealt with the subtleties of inter-orchestral communication between musicians during a performance / research was done jointly with University of Oxford
- Designed real-time broadcaster/subscriber event-driven communication framework

WhiteCloud Analytics, Boise, ID Jun 2014 - Aug 2014
Software Engineer (Intern) under Mr. Tim Ramey
- Developed software to complement hospital administration and healthcare analytics

Idaho Digital Learning Academy, Boise, ID Feb 2012 - Jun 2014
Software Engineer (Intern) under Mr. Ryan Gravette
- Presented educational software to the Idaho Senate Committee of Education, received letter of recommendation from senator (*https://goo.gl/fUpCac*)

NOTABLE COURSE PROJECTS

CS 6670: Graduate-level Computer Vision, Ithaca, NY Aug 2017 - Dec 2017
Unsupervised Image-to-Image Translation, course taught by Dr. Bharath Hariharan

- Explored unsupervised methods for non-linear low dimensional invariant feature space mappings for images

CS 4701: Artificial Intelligence Practicum, Ithaca, NY — Mar 2017 - May 2017

Neural Approach to Song Recognition, course taught by Dr. Haym Hirsh

- Explored deep representation learning in the domain of complicated audio signals
- Designed non-conventional convolutional neural network to recognize name of song given few-second clip of the song in raw audio waveform
- Neural model outperformed Shazam's audio-fingerprinting algorithm in space and time complexity and duration of clip needed to make confident prediction (*https://goo.gl/TnaZeQ*)

CS 1610: Computing in the Arts, Ithaca, NY — Nov 2014 - Dec 2014

Discovering Institutional Relationships among Research Papers using Map-Reduce Paradigm, course taught by Dr. Graeme Bailey

- Designed distributed map-reduce job to produce similarity graph of papers and discovered how connectivity of graph illustrated patterns in institutional co-authorship

EXTRA-CURRICULAR ACTIVITIES

Cornell Data Science Project Team — Jan 2016 - Dec 2016

Team Lead, Project Manager

- Led team to design platform to collect student academic and extra-curricular schedule data to be used by AI system to optimize future scheduling plans

HOBBIES

Reading latest computer science-related papers, spending time with family, teaching CS and math concepts to younger brother and friends, chess (won past state / national tournaments)