# Supun Nakandala

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**Research Interests**  My research interest lies broadly in the intersection of ML and Systems, an emerging area which is increasingly referred to as ML Systems. Some of my current research work involves implementing data management inspired abstractions, algorithms, and systems, for improving the efficiency and usability of Deep Learning powered ML workloads. I am also interested interested in applying ML based techniques for improving the efficiency of system components in data management systems.

**Education**

**University of California**, San Diego, CA — Sept 2017 - Present
*PhD*, Computer Science. GPA: 4.0/4.0
Thesis Advisor: Arun Kumar

**University of Moratuwa**, Sri Lanka — Aug 2010 - April 2015
*Bachelor of the Science of Engineering*, Computer Science & Engineering.
GPA: 4.11/4.20.

**Publications**

*Incremental and Approximate Inference for Faster Occlusion-based Deep CNN Explanations*
**Nakandala, S.**, Kumar, A., Papakonstantinou, Y.
(Under Submission).

*Materialization Trade-offs for Feature Transfer from Deep CNNs for Multimodal Data Analytics*
**Nakandala, S.**, Kumar, A.
(Under Submission).

*Gendered Conversation in a Social Game-Streaming Platform*
**Nakandala, S.**, Giovanni, C., Norman, S., Ahn, Y.
In Proceedings of $11^{th}$ International AAAI Conference On Web And Social Media (ICWSM) 2017.

*Apache Airavata Security Manager: Authentication and Authorization Implementations for a Multi-Tenant eScience Framework*
**Nakandala, S.**, Gunasinghe, H., Marru, S., Pierce, M.
In Proceedings of IEEE $12^{th}$ International Conference on e-Science 2016.

*Anatomy of the SEAGrid Science Gateway*
**Nakandala, S.**, Pamidighantam, S., Yodage, S., Doshi, N., Abeysinghe, E., Kankanamalage, C.P., Marru, S. and Pierce, M.
In Proceedings of Extreme Science & Engineering Discovery Environments Conference (XSEDE) on Diversity, Big Data, and Science at Scale 2016.

**Current Projects**  **Cerebro**: The goal of this project is to make the end-to-end model selection process more efficient when developing ML models. To this end, we are developing a new system which takes inspirations from RDBMS, scalable distributed systems, and operations research literature.

**Medical Data to Knowledge**: In this project, which is done in collaboration with researchers from the UCSD Dept. of Public Health, I develop new ML models to predict the sitting patterns for a large cohort of human subjects belonging to different age groups using data from hip worn accelerometers. The predicted results will then be used to better understand the relationship between human sitting patterns and metabolic health.

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| **Experience** | **Research Software Developer** | Oct 2015 - Aug 2017 |
| | *Indiana University* | |

- Worked as a developer for the Apache Airavata project, which is a science gateway middleware framework to enable users to compose, manage, execute, and monitor large scale applications and workflows on distributed computing resources such as local clusters, supercomputers, computational grids, and computing clouds.
  Group Website: `https://sgrc.iu.edu`

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| | **Google Summer of Code Intern** | May 2014 - Sept 2014 |
| | *Apache Airavata* | |

- Implemented API security capabilities for the Airavata Thrift services for the communication between end-user gateways and the Airavata server.
  Link: `https://goo.gl/4qAS3X`)

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| | **Google Summer of Code Intern** | May 2013 - Sept 2013 |
| | *phpMyAdmin* | |

- Refactored the SQL executor and column structure manipulation code in phpMyAdmin, which is an open-source web based interface for MySQL databases
  Link : `https://goo.gl/JNk3vM`

**Awards**

IBM Gold Medal for the Best Academic Performance in Computer Science & Engineering - University of Moratuwa                                                                 2015

Scholarship to attend $4^{th}$ South Asia Workshop on Research Frontiers in Computing - NUS School of Computing                                                           2014

Mahapola Higher Education Merit Scholarship for Undergraduate Studies - Government of Sri Lanka                                                                                2010

**Posters**

*Materialization Trade-offs for Feature Transfer from Deep CNNs for Multimodal Data Analytics*
SysML Conference, SoCal DB Day                                                                2018

**Talks**

*Materialization Trade-offs for Feature Transfer from Deep CNNs for Multimodal Data Analytics*
UCSD CNS Research Review, UCSD Database Seminar                                                2018

**References**

Arun Kumar
Assistant Professor, University of California, San Diego
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Marlon Pierce
Director - Science Gateways Research Center, Indiana University Bloomington
marpierc@iu.edu