Siddha Ganju

http://sidgan.me/
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Current appointments

2018-Present **Architect - Autonomous Vehicles**, *Nvidia*, Santa Clara, CA, USA.

2017-2018 **Deep learning Data Scientist**, *Deep Vision Inc.*, Palo Alto, CA, USA.

Education

2015-2016 **M.S. in Computational Data Science**, *Carnegie Mellon University (CMU), School of Computer Science*, Pittsburgh, PA, USA.
Capstone: Open Advancement of Question Answering using Deep Learning.

2011-2015 **B. Tech. in Computer Science and Engineering**, *National Institute of Technology (NIT), Department of Computer Science and Engineering*, Hamirpur, HP, India.
Major Project I: Deep Learning for Audio Recognition.
Major Project II: Missing Data Prediction using Data Mining for Wireless Sensor Networks.

Achievements

2019 **Forbes 30 Under 30**, *Forbes Magazine*.

2016 **Invited Member, Open Leadership Cohort, Working Open Workshop**, *Mozilla Science Lab, Berlin, Germany*.

2015 **Grace Hopper Conference Scholar**, *Texas, USA*.

2015 **Winner, Best Innovative Outreach, CERN WebFest**, *Geneva, Switzerland*.

2011-2015 **Ambuja Scholarship**, *NIT*.

2014 **Winner, Grace Hopper Conference Hackathon**, *Bangalore, India*.

2014 **Represented India, New York University International Hackathon**, *Abu Dhabi, U.A.E.*

2013-2014 **Women Ambassador**, *The Institution of Engineering and Technology, U.K. (IET)*.

2013 **Winner, India Scholarship Award**, *IET*, New Delhi, India.

2013 **Student Representative, Community Volunteers Conference**, *IET, Sri Lanka*.

Invited Talks

2019 **Keynote: Mobile Deep Learning**, *Deep Learning World, Las Vegas, USA*.

2019 **Keynote: Deep Learning on Mobile**, *Open Data Science Conference East, Boston, USA*.

2019 **GPU Technology Conference**, *San Jose, CA, USA*.

2019 **Trends in Computer Vision**, *This Week in Machine Learning and Artificial Intelligence Podcast*, (TBD listeners).

2018 **Deep Learning on Mobile**, *Open Data Science Conference West, San Francisco, USA*.

2018 **Simulation and ReSimulation For Validating the Autonomous Vehicle Stack**, *GTC Israel, USA*.

2018 **Scalable Simulation and ReSimulation in the Autonomous Vehicle Stack**, *GTC Europe, USA*.

2018 **Computer Vision Segment**, *Interop ITX, Las Vegas, USA*.

2018 **Optimizing Neural Nets for Resource Constraint Devices**, *AI NEXTCon, Silicon Valley Edition, Santa Clara, USA*.

2018 **Being smarter than dinosaurs: How NASA uses Deep Learning for Planetary Defense**, *Strata Data Conference, San Jose, USA*.

2018 **Embedded Deep Learning at Deep Vision**, *This Week in Machine Learning and Artificial Intelligence Podcast*, (19k+ listeners).

2017 **Embedded Deep Learning: Deep Learning for Embedded Systems**, *O'Reilly Artificial Intelligence, San Francisco, USA*.

2017 **Embedded Systems and Deep Learning**, *Global Big Data Conference, Santa Clara, USA*.

2016 **Atom smashing using Machine Learning at CERN**, *Strata+Hadoop World, San Jose, USA*.

Panel Discussions

2017 **The road to becoming a Data Scientist**, *Global Big Data Conference, Santa Clara, USA*.

2016 **IBM+Apache Spark Maker**, *San Francisco, USA*.

Media

2018 **Dispute over reaction prediction puts machine learning's pitfalls in spotlight**, *Katrina Kramer, Chemistry World, Royal Society of Chemistry*, December 18, 2018.

2017 **Contouring learning rate to optimize neural nets**, *Siddha Ganju, O'Reilly Media*, August 17, 2017.

2016 **Apache Spark for Atom-Smashing experiments**, *Siddha Ganju, O'Reilly Media*, June 9, 2016.

2016 **CERN seeks to predict new and popular data sets**, *Siddha Ganju, O'Reilly Media*, March 22, 2016.

Publications

Books

2019 *Upcoming* **Practical Deep Learning for Cloud and Mobile – Hands-On Computer Vision Projects Using Python, Keras and TensorFlow**, *A Koul,* ***S Ganju****, MA Kasam*, O'Reilly Publishing, 2019.

Peer-reviewed Journal Articles

PSS 2018 **A Survey of Southern Hemisphere Meteor Showers**, *P Jenniskens, J Baggaley, I Crumpton, P Aldous, P Pokorny, D Janches, P Gural, D Samuels, J Albers, A Howell, C Johannink, M Breukers, M Odeh, N Moskovitz, J Collison,* ***S Ganju***, Planetary and Space Science Journal, 2018.

Peer-reviewed Conference Articles

CVPR 2017 Spotlight **What's in a Question: Using Visual Questions as a Form of Supervision**, ***S Ganju****, O Russakovsky, A Gupta*, Computer Vision and Pattern Recognition, 2017.

IMC 2017 **Artificial Intelligence Techniques applied to Automating Meteor Validation and Trajectory Quality Control to Direct the Search for Long Period Comets**, *M DeCicco*, S Zoghbi*, A P Stapper*, A J Ordonez*, J Collison*, P S Gural,* ***S Ganju****, J L Galache, P Jenniskens*, International Meteor Conference, 2017.

CERN Research

Zenodo 2015 **Evaluation of Apache Spark as an Analytics framework for CERN's Big Data Analytics**, ***S Ganju****, V Kuznetsov, T Wildish, M Martin Marquez, A Romero Marin*, 10.5281/zenodo.3186, 2015.

Peer-reviewed Conference Workshops

CVPR 2017 **What's in a Question: Using Visual Questions as a Form of Supervision**, ***S Ganju****, O Russakovsky, A Gupta*, Language and Vision Workshop, 2017.

CVPR 2017 **What's in a Question: Using Visual Questions as a Form of Supervision**, ***S Ganju****, O Russakovsky, A Gupta*, VQA Challenge Workshop , 2017.

NeurIPS 2017 **In Search of Long-Period Comets with Deep Learning Tools**, *S Zoghbi*, M DeCicco*, A P Stapper*, A J Ordonez*, J Collison*, P S Gural,* ***S Ganju****, J L Galache, P Jenniskens*, Women in Machine Learning (WiML) Workshop, 2017.

NeurIPS 2017 **Searching for Long-Period Comets with Deep Learning Tools**, *S Zoghbi*, M DeCicco*, A P Stapper*, A J Ordonez*, J Collison*, P S Gural,* ***S Ganju****, J L Galache, P Jenniskens*, Deep Learning for Physical Science Workshop, 2017.

GHC 2015 **Automated Python Pipeline for Machine Learning Problems**, ***S Ganju****, A Koul*, Grace Hopper Conference, 2015.

*=Equal Contribution

Research Experience

2016 **Research Extern**, *CMU*, Mentors: Prof. Olga Russakovsky, Prof. Abhinav Gupta. Research focused on weak supervision: Utilizing supervision from visual questions asked about images. Spotlight presentation & poster at the **IEEE Computer Vision and Pattern Recognition conference, 2017.**

2015 **Openlab Research Intern**, *CERN*, Mentors: Dr. Valentin Kuznetsov, Dr. Tony Wildish, Manuel Martin Marquez, Antonio Romero Marin.
Evaluation of Apache Spark as an Analytics framework for CERN's Big Data Analytics: Used Apache Spark to streamline different predictive prototypes by gathering information from the Compact Muon Solenoid experiment, ran predictive models and proposed datasets which will become popular over time. Evaluated quality of individual models, performed component analysis and selected best predictive model for new set of data. Talk presented at **Strata+Hadoop World, 2016**.

2014 **Summer Intern**, *NIT*, Mentor: Anirudh Koul, Senior Data Scientist, Microsoft.
Automated Pipeline for Machine Learning Problems: Created a Python command line toolkit using scikit, numpy, pandas and matplotlib libraries to solve machine learning problems automatically. Imputation and hyper parameteric optimization placed our trained model among the top 10% of the Titanic kaggle.com challenge (Rank 198/2035 in July 2014). Experimented with large data sets and deployed on Hadoop cluster over AWS. Poster presentation at **Grace Hopper, 2015**

Pro Bono Volunteering and Professional Activities

Judge

2019 **Judge**, *The Edison Awards*.

2019 **Judge**, *The AIconics Awards*.

2019 **Judge**, *CES Innovation Awards*.

2018 **Judge**, *The Canadian FinTech Awards*.

2018 **Judge**, *The Global Annual Achievement Awards for Artificial Intelligence*.

Committees

2018-now **AI Technical Committee**, *NASA*, Frontier Development Lab.

Chair

2019 **GPU Technology Conference**, *San Jose, CA, USA*.

Reviewer

2019 **IEEE Computer Vision and Pattern Recognition Conference**.

2019 **IEEE International Conference on Computer Vision**.

2019 **Grace Hopper Conference**.

2019 **O'Reilly Artificial Intelligence Conference**, *New York, NY, USA*.

2019 **O'Reilly Artificial Intelligence Conference**, *San Francisco, CA, USA*.

2019 **GPU Technology Conference**, *Beijing, China*.
Reviewer for Artificial Intelligence, Machine Learning, Deep Learning and Autonomous Vehicles tracks

2019 **GPU Technology Conference**, *Munich, Germany*.
Reviewer for Artificial Intelligence, Machine Learning, Deep Learning and Autonomous Vehicles tracks

2019 **GPU Technology Conference**, *Tel Aviv, Israel*.
Reviewer for Artificial Intelligence, Machine Learning, Deep Learning and Autonomous Vehicles tracks

2019 **GPU Technology Conference**, *Tokyo, Japan*.
Reviewer for Artificial Intelligence, Machine Learning, Deep Learning and Autonomous Vehicles tracks

2019 **GPU Technology Conference**, *San Jose, CA, USA*.
Reviewer for Artificial Intelligence, Machine Learning, Deep Learning and Autonomous Vehicles tracks

2019 **GPU Technology Conference**, *Taipei, Taiwan*.
Reviewer for Artificial Intelligence, Machine Learning, Deep Learning and Autonomous Vehicles tracks

2019 **GPU Technology Conference**, *Washington DC, USA*.
Reviewer for Artificial Intelligence, Machine Learning, Deep Learning and Autonomous Vehicles tracks

2018 **NVIDIA GPU Grant**.

2016 **Women in Machine Learning Conference (WiML)**, NeurIPS.

2016 **Language Technology Institute Student Research Symposium**, CMU.

Mentoring

2018 **Mentor, STEM SQUAD**, Winters Middle School, Winters, CA.
Gave an introduction to Computer Science, Computer Vision and Artificial Intelligence to Winters Middle School students. Helped them engage with an interactive coding activity.

2017-2018 **Mentor**, *Global NIPS AI Implementation Challenge*.
Mentored graduate students to create their own open-source, well-documented code implementations of the research papers accepted at the Conference on Neural Information Processing Systems (NeurIPS) 2017.

2017 **Deep Learning Coach**, *NASA*, Frontier Development Lab.
Mentored deep learning researchers to develop machine learning and deep learning tools to discriminate meteors from other detections. Designed Python scripts that automate the data collection, run the CAMS software, and compare the calculated orbit with a meteor shower template file based on showers assigned by Peter Jenniskens. Developed a new web tool that displays each shower radiant in sun-centered ecliptic coordinates. Beyond huge efficiency from automation with human-level accuracy, it resulted in raising awareness and bringing in new citizen scientists who could now use non-professional equipment to contribute meteor sightings. Soon after its release, it detected the **highest number of meteors** in NASA's 58-year history. The data automation script helped to **triple** the camera network from 80 cameras to 256 cameras over a span of 3 months. Talks and posters presented at **Strata Data Conference 2018**, **International Meteor Conference 2017**, **GPU Technology Conference 2017** and **Neural Information Processing Systems 2017**.

Workshop and Tutorial Organization

2016 **Open Source Day**, Grace Hopper Conference.

2014 **International Workshop on Machine Learning Algorithms and Data Analytics**, Thapar University, Patiala, PB, India.