

Adityakrishna Chivukula

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EDUCATION	<i>BITS Pilani, Hyderabad, India</i> B.E. (Honours), Computer Science. Discipline GPA: 8.13/10 expected, July 2017
	<i>AECS Maaruti Magnolia Public School</i> Senior Secondary School, Science Stream. AISSE: 93.6% May 2013
PUBLICATIONS	<i>On the Modeling of Error Functions as High Dimensional Landscapes for Weight Initialization in Learning Networks,</i> Julius, Gopinath Mahale, Sumana T., Adityakrishna Chivukula In proceedings of the International Conference on Embedded Systems, Architecture, Modeling and Simulation (SAMOS XVI) [arXiv]
ACADEMIC PROJECTS	<i>Deep Learning, Techniques and Applications</i> April 2016 - Present Studying the various Deep Learning techniques including <ul style="list-style-type: none">• <i>Network Architecture:</i> CNN, RNN, LSTM, GAN, Autoencoders• <i>Optimization:</i> Stochastic Gradient Descent, RMSprop, Adagrad and variants, second-order optimizations techniques.• <i>Implementation:</i> Code primarily written in Tensorflow and run on standard datasets (CIFAR, ImageNet). Other libraries used were Caffe and Torch.
	<i>Augmented Reality using Deep Learning for Scene Understanding</i> April 2016 - Present Design Deep Learning system for real-time semantic segmentation and labelling of key objects in view. Some of the papers that inspired this project are: <ul style="list-style-type: none">• <i>Learning to Segment Object Candidates</i>, Pinheiro et al.• <i>Conditional Random Fields as Recurrent Neural Networks</i>, Zheng et al.
	<i>Automatic Differentiation</i> Jan 2016 - May 2016 Worked on implementing a simplistic operator overloading based reverse mode AD tool. Specifically, I implemented DAGs using a custom AD tool with composite functions optimised by representing as independant gates. Studied multiple taping methods and DAG reductions.
	<i>Real-Time Rainfall Simulation in OpenGL</i> Aug 2015 - Dec 2015 Implemented a physics-based droplet rendering rainfall simulation based on the approach mentioned in the following paper: <i>Real-time Rain Simulation in Cartoon Style</i> , Feng et al [Code]
RESEARCH INTERNSHIPS	<i>CADLab, Indian Institute of Science, Bangalore</i> Dec 2015 - Mar 2016 Worked on a Statistical Physics formulation of the optimization objective for Neural Networks. Using results from Random Matrix Theory for Spin Glass Models, we define a weight initialisation that performs better than current initialisation methods on simple networks. Results published in SAMOS XVI.

CONFERENCES	<i>International Space Development Conference 2011, Huntsville</i> May 2011 Presented project Ubiety, second-prize winning submission for the NASA Ames Space Settlement Design Challenge [Page]
TEACHING	<div> <i>Deep Learning Society</i> Aug 2016 - Present </div> Conduct weekly discussion sessions on trending Deep Learning and their applications in practice. Topics include the mathematical formulation of a variety of networks and optimization objectives, methods of implementation and current research trends. <div> <i>Teaching Assistant</i> Aug 2015 - Dec 2015 </div> CS F222, Discrete Structures for Computer Science <ul style="list-style-type: none"> • Designed coding assignment questions for evaluation. • Implemented portal for submitting and evaluating responses, hosted on the intranet.
SKILLS	<ul style="list-style-type: none"> • <i>Languages & Software: (in order of proficiency)</i> C++, Python, MATLAB/Octave, Java, R • <i>Libraries:</i> Tensorflow, Caffe, Torch, OpenGL, CGAL, OpenCV.
EXTRA-CURRICULAR ACTIVITIES	Head of Editorial Board, BITS Embryo BITS Embryo is a student body that invites renowned speakers, domain experts and successful alumni from around the world engaged in a variety of domains to deliver guest lectures for the students of the university. <div> Volunteer, HelpAge India - Bangalore HelpAge India is a nation-wide NGO that works towards assisting and improving the well-being of senior citizens. </div>