

Arijit Ray

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STRONG: **Interests**

Python,
MATLAB,
Keras,
TensorFlow,
Flask,

Computer Vision, Natural Language Processing, Deep Learning, Machine Learning

Education

MEDIUM:

Java,
C/C++,
Caffe,
Torch/Lua,
JavaScript,
HTML5
CSS3

2011–2015

M.S. (Thesis), Computer Engineering

Virginia Tech

Current GPA: 3.96 / 4.00, Concentration on Computer Vision and Machine Learning

Advisor: Dr. Devi Parikh

B.Tech. (Thesis), Electrical and Electronics Engineering

SRM University

GPA: 9.05/10, *summa cum laude* (First-Class Distinction), Received Academic Merit Scholarship

Experience

May'17 - Present

Computer Scientist

Center for Vision Technologies, SRI International

May'16 - Aug'16

Deep Learning Intern

worked with Dr. Marci Meingast, Blue River Technology (now acquired by John Deere), Sunnyvale, CA

Apr'16 - May'17

Graduate Research Assistant, Virginia Tech

Computer Vision Lab

Apr'16 - Apr'17

Vice President, Tau Beta Pi

Virginia Beta Chapter

Summer 2014

Undergraduate Research Intern, NIT Trichy

Detecting Sarcasm for Sentiment Analysis using Intuitive Attributes, under Dr. Elango Sivasankar

Summer 2012

Undergraduate Research Intern, Variable Energy Cyclotron Center

Programming a PID controller for High Frequency RF Cavity in Cyclotrons

Selected Awards

Summer 2016

Employee of the Fortnight

Helping develop weed detection technology that led to acquisition by John Deere, Blue River Technology

Spring 2013

Silver Medal, Research Day Award

Electro-Mechanical Exoskeleton, SRM University

Fall 2012

Academic Merit Scholarship

SRM University, for exceptional academic performance, top 1% of students in department

Press Coverage

Fall 2014 **Indian Express, Deccan Chronicle, Engineering.Careers360**
UAV with Facial Recognition Capabilities for SOS Help and Surveillance,
<http://arjitray.atspace.co.uk/uav.html>

Selected Projects

- Fall 2017 **DARPA Explainable AI (XAI) - Deep Attentional Representations for Explanations (DARE)**
Working on SRI International's DARE Team for DARPA XAI effort.
- Spring 2017 **The Art of Deep Connection - Towards Natural and Pragmatic Conversational Agent Interactions**
Towards making AI's and humans connect in natural human-like ways, Master's Thesis
- Spring 2017 **Guess What? The Visual Twenty Questions Game**
One AI agent conversing with another AI/human agent to figure out an unknown image in a classical twenty questions setting. <https://goo.gl/2hCrCf>
- Fall 2016 **Make RBF Networks Fast Again- Exploiting Multi-Threaded Computing to Speed Up RBF Networks**
Implementing concurrent versions of RBF layers to integrate them into the TensorFlow package. Code publicly available for integration with TensorFlow. <https://github.com/arjitray1993/TensorFlowRBF>
- Spring 2016 **Question Relevance in VQA: Identifying Non-Visual and False-Premise Questions in VQA**
Introduced the novel problem of identifying if a question is relevant for a given image, accepted at EMNLP 2016, <https://www.youtube.com/watch?v=wZJmHs6qSyY>
- Spring 2016 **Identifying Explicit Connectives: CoNLL 2016 Shared Task on Discourse Parsing**
Identifying explicit connectives in a sentence, the first module in the pipeline of discourse parsing. Within top 10 submissions worldwide!
- Fall 2015 **Online Demo for Predicting Plausibility of Common Sense Assertions**
Predicting plausibility score of entered tuple using visual and textual common sense. <http://godel.ece.vt.edu/commonSense>
- Fall 2015 **Object Prediction using Image Context**
Predicting plausible objects for enhancing abstract scenes based on visual common sense. https://filebox.ece.vt.edu/~aroma/web/cv_project_15/home.html
- Fall 2015 **Matching Cover Songs with the Original Ones**
Match cover songs to original ones using an ensemble of machine learning techniques
- Fall 2013 **SRM Nano-Satellite Power Subsystems**
Project leader for the development of schematics for power subsystems in nano-satellites.
- Spring 2013 **ABU Asia-Pacific ROBOCON**
Developed high speed traction control for autonomous robots for a robotic competition

Selected Publications

Arijit Ray, Giedrius T. Burachas, Karan Sikka, Anirban Roy, Avi Ziskind, Yi Yao, Ajay Divakaran, **"Make Up Your Mind: Towards Consistent Answer Predictions in VQA Models"**, Shortcomings in Vision and Language Workshop, European Conference on Computer Vision (ECCV) 2018, Munchen, Germany

Arijit Ray, Yi Yao, Avi Ziskind, Rakesh Kumar, Giedrius Burachas, **"Evaluating Visual-Semantic Explanations using a Collaborative Image Guessing Game"**, VQA/Visual Dialog Workshop, Computer Vision and

Pattern Recognition Conference (CVPR) 2018, Salt Lake City, Utah

Shalini Ghosh, Giedrius Burachas, Arijit Ray, and Avi Ziskind, “**Generating Natural Language Explanations for Visual Question Answering using Scene Graphs and Visual Attention**”, IJCAI/ECAI 2018 Workshop on Explainable Artificial Intelligence, Stockholm, Sweden

Arijit Ray, “**The Art of Deep Connection - Towards Natural and Pragmatic Conversational Agent Interactions**”, Master’s Thesis, Virginia Tech, <https://vtechworks.lib.vt.edu/handle/10919/78335>

Arijit Ray, Gordon Christie, Mohit Bansal, Dhruv Batra, Devi Parikh, “**Question Relevance in VQA: Identifying Non-Visual and False-Premise Questions**”, Conference on Empirical Methods in Natural Language Processing (EMNLP) 2016, Texas, Austin.

Prashant Chandrasekar, Xuan Zhang, Saurabh Chakravarty, Arijit Ray, John Krulick, and Alla Rozovskaya, “**The Virginia Tech System at CoNLL-2016 Shared Task on Shallow Discourse Parsing**”, ACL 2016 p. 115.

Arijit Ray, Kishan Prudhvi Guddanti, and N. Chellammal. “**An Approach to Intelligent Traction Control Using Regression Networks and Anomaly Detection.**” Applied Artificial Intelligence 29.6 (2015): 597-616.

Miscellanea

Talks Given:

- | | | |
|-------------|---|----------------------------|
| May 2017 | Mid-Atlantic Computer Vision (MACV) Workshop
Guess what? The Visual Twenty Questions Game | University of Pennsylvania |
| Spring 2013 | Defense Research and Development Organization
Standardized Power Systems of Nano-Satellites | |

Workshops:

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|------------|---|--------------------------|
| May 2016 | Mid-Atlantic Computer Vision (MACV) Workshop
Poster: Question Relevance in VQA - Identifying Non-Visual And False-Premise Questions | Johns Hopkins University |
| March 2017 | Tau Beta Pi District Conference
Represented the Virginia Beta Chapter at the conference | West Virginia University |

Community Service:

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| Apr 2017 | Judge for Blue Ridge Highlands Regional Science Fair
Volunteered as a judge for the Blue Ridge Highlands Regional Science Fair | Radford University |
| Apr 2016 | The Big Event at Virginia Tech
Residential Nature Preservation | Blacksburg, VA |
| Sep 2016 | Gleaning Trip
Turnip Harvesting | Windy Hills Farm, Riner, VA |
| Fall 2015 | CVPR 2016 Reviewer
Served as a reviewer for Computer Vision and Pattern Recognition Conference 2016 | |

Selected Childhood Achievements/Awards:

- 2011 **Near Perfect Mathematics Score, All India Central Board Examinations** CBSE Class 12
97/100, Top <0.1% (99.9%ile) students in India
- 2011 **Best High School Project**
4-Axis Pneumatic Robotic Arm
- 2008 **First Prize, Biennial School Science Exhibition, Breakthrough Science Society**
Homemade Solar Battery and other green energy gadgets
- 2007 **National Science Olympiad**
All India Rank: 168, City Rank: 7, School Rank: 2 . Maintained a rank < 1000 in National Science Olympiads 2008, 2009, 2010
- 2006 **Opened Research Society in Middle School**
Goal of encouraging middle-school students take an interest in science. Won multiple accolades in school/city level exhibitions. Some projects featured here: <https://exploreyourself.atspace.co.uk/>