

Vishal Anand

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INTERESTS

Natural Language Processing, Conversational AI, Multi-modal learning, Human Computer Interaction

EDUCATION

- **Columbia University**, MS, Computer Science, 3.84/4 2017 - 2019
 - NLP Lab: Low Resource learning. Conversational AI / Summary. Machine Reading
 - CA Fellow Tuition Waiver, Student Body Career Chair, PDL Fellow, Class Marshal
- **IIT Guwahati**, BTech, Computer Science, 8.1/10 2011 - 2015
 - Thesis: Multi-task NLP: word-vector generation, causality evaluation

INVITED TALKS

- 'Semantic Inference on Multimodal long form datasets', NIST, 2021
- 'On skipping dense nets: Explainability in DeepNets', AI4Retail Conference, New York, 2019
- 'Context sensitive NLP models in business decisions', eBay, New York, 2018

EMPLOYMENT & RESEARCH

- **Microsoft**, Applied Scientist, March 2019 - Current
 - Smart-reply in conversational AI, Microsoft Research MSR - JEM program
 - Published Five papers with external collaboration
- **NLP Lab, Columbia University**, Research Assistant, 2017 - 2019
 - Multi-lingual low resource transfer learning: Swahili-Tagalog-Somali, German
 - Conversational Summarization with primary text and secondary sound guidance
- **Uber**, Machine Learning Intern, Summer 2018
 - Publicly featured first of 11 selected among 200 interns in Uber's blog [link]
 - 8% CTR improved, Deep-Wide Tensorflow Models to debias under-sampled elasticities
- **Visa**, Senior Software Engineer, 2015 - 2017
 - Anomaly detection in transactions, 2 patents and 1 trade secret filed
 - CFO Vasant Prabhu directly recognized my work; fast-tracked promotion
- **Google Summer of Code**, Fellow, Summer 2015
 - Architected and developed open-source Kriging Interpolation libraries, Eclipse, [code]
- **Goldman Sachs London**, Equity Quantitative Strategist, Summer 2014
 - 40 million USD each order: Hedged risks for Exchange Traded Funds' Algorithmic trading
- **University of Manchester**, Research Assistant, Summer 2013
 - Improved 30% efficiency with Queen's Swarm Optimization variant in ML models

PUBLICATIONS & PATENTS

- Kayi E *, **Anand V***, Muresan S. MultiSeg: Parallel Data and Subword Information for Learning Bilingual Embeddings in Low Resource Scenarios [paper] [code] [visualization]
In Proceedings of *Language Resources and Evaluation Conference*, Marseille, France
Full paper: SLTU-CCURL at LREC, 2020
- **Anand V**, Ramesh R, Jin B, Wang Z, Lei X, and Lin C. MultiModal Language Modelling on Knowledge Graphs for Deep Video Understanding. [**Leaderboard #1**]
In Proceedings of the 29th ACM Multimedia Conference, Chengdu, China, 2021.
- **Anand V**, Ramesh R, Wang Z, Feng Y, Feng J, Lyu W, Zhu T, Yuan S, and Lin C. Story Semantic Relationships from Multimodal Cognitions. [**Leaderboard #3**]
In Proceedings of the 28th ACM Multimedia Conference, Seattle, USA, 2020.

- Ramesh R, **Anand V**, Wang Z, Zhu T, Lyu W, Yuan S, and Lin C. Kinetics and Scene features for intent detection. International Workshop on Deep Video Understanding (DVU2020) (Co-Located with ACM ICMI 2020, Utrecht, The Netherlands, 2020. **Oral Presentation**.
- **Anand V**, Miura Y. PREDISM: Pre-Disaster Modelling With CNN Ensembles for At-Risk Communities. NeurIPS Workshop: Tackling Climate Change with Machine Learning, 2021
- **Anand V** In process, two patents: Text process optimization; NLP and Quantum learning, 2021
- **Anand V** Security (NLP) approaches for virtual reality, Visa Inc., US Patent. 15/184,759, 2019
- **Anand V** Systems & methods for preventing fraud, Visa Inc., US Patent. 15/674,187, 2017
- **Anand V** NLP based pre-event occurrence prediction, Trade Secret, Visa Inc., 2016
- Multiple authors (top researcher). On Optimizing Human-Machine Task Assignments, In proceedings of 3rd AAAI Conference on Human Computation and Crowdsourcing, San Diego, USA, Nov 2015.

SKILLS

- *Code*: C++, Python, Java, Scala, C; *Frameworks*: PyTorch, Tensorflow, Spring, Docker
- *Languages*: English (fluent), Hindi (native), Odiya (fair), Mandarin (basic)

SELECTED HONORS

- Invited to speak at National Institute of Standards and Technology (NIST), 2021
- Class Marshal in graduating Columbia class for demonstrating academic achievements, 2019
- CA Fellowship, Columbia: full-tuition waiver for exceptional performance, 2018
- Featured in Uber's blog [link], 11 out of 200 interns, 2018
- Silver Innovation Award: Pioneering with a purpose - session with CFO, Visa, 2016
- Asia Ranked 79, ACM ICPC Asia, Regionals Onsite, 2014
- All India Ranked 104, National Cyber Olympiad, 2011

MORE PROJECTS

- Variational autoencoder on sparse data for music playlist recommendation, Advanced Machine Learning with Professor Tony Jebara (Netflix / Spotify), Spring 2018
- Multi-Task NLP framework for deep learning and causality evaluation, Thesis, IIT Guwahati, Dr. Ashish Anand, 2014-2015

LINKS

- Website: <https://vishalanand.net>
- Github: <https://github.com/vishalanand>
- LinkedIn: <https://www.linkedin.com/in/anandvishal94>

REFERENCES

- Professor Smaranda Muresan, Research Scientist, Columbia University
- Professor Ching-Yung Lin, IEEE Fellow, Columbia University
- Cheng Wu, PhD., Principal Group Science Manager, Microsoft
- Professor Ashish Anand, IIT Guwahati

MENTORING

- Head TA: Advanced Big Data Analytics, Columbia University, Fall 2018, Spring 2018, Fall 2017
 - Worked with Professor Ching-Yung Lin to design research projects.
 - TA award with full tuition waiver. Managed 6 TAs and 180 graduate students.
 - Bi-weekly one-on-one team mentoring on their research.
- Co-Lead TA: CS101, CS110, Introduction to Computing, IIT Guwahati, Fall 2014
 - Program to help under-performing students; undergrads usually not allowed to tutor