

Pratyay Banerjee

PERSONAL INFO	21 OCT, 1992 Apt 32, 910 E Lemon Street Tempe, AZ-85281, USA Citizenship : India, F1 Visa	PH - +1-4802427693 Email - pbanerj6@asu.edu Scholar , LinkedIn , Website , Github
INTERESTS	Natural Language Understanding, Neural Reasoning, Vision + Language, Question Answering	
EDUCATION	<i>Ph.D.</i> , Computer Science & Engineering <i>Arizona State University</i> , USA GPA : 4.0 / 4.0 <i>Bachelor of Engineering</i> , Computer Science & Engineering <i>Jadavpur University</i> , India GPA : 8.8 / 10	Aug 2018 - Current July 2014
PUBLICATIONS	<i>Weakly Supervised Relative Spatial Reasoning for Visual Question Answering</i> P. Banerjee , T. Gokhale, Y. Yang, C. Baral <i>Weakly-Supervised Visual-Retriever-Reader for Knowledge-based Question Answering</i> M. Luo, Y. Zeng, P. Banerjee , C. Baral <i>Unsupervised Pronoun Resolution via Masked Noun-Phrase Prediction</i> M. Shen*, P. Banerjee *, C. Baral <i>Commonsense Reasoning with Implicit Knowledge in Natural Language</i> P. Banerjee *, S. Mishra*, K. Pal*, A. Mitra*, C. Baral <i>WeaQA: Weak Supervision via Captions for Visual Question Answering</i> P. Banerjee , T. Gokhale, Y. Yang, C. Baral <i>Constructing Flow Graphs from Procedural Cybersecurity Texts</i> K. Pal, K. Kashihara, P. Banerjee , S. Mishra, R. Wang, C. Baral <i>Self-Supervised Test-Time Learning for Reading Comprehension</i> P. Banerjee , T. Gokhale, C. Baral <i>Self-supervised Knowledge Triplet Learning for Zero-shot QA</i> P. Banerjee , C. Baral <i>MUTANT: A Training Paradigm for Out-of-Distribution Generalization in VQA</i> T. Gokhale*, P. Banerjee *, C. Baral, Y. Yang <i>Video2Commonsense: Generating Commonsense Descriptions to Enrich Video Captioning</i> Z. Fang*, T. Gokhale*, P. Banerjee , C. Baral, Y. Yang <i>VQA-LOL: Visual Question Answering under the Lens of Logic</i> T. Gokhale*, P. Banerjee *, C. Baral, Y. Yang <i>Careful Selection of Knowledge to solve Open Book Question Answering</i> P. Banerjee , K. Pal, A. Mitra, C. Baral <i>VQA with Annotation-Efficient Zero Shot Learning under Linguistic Domain Shift</i> P. Banerjee , T. Gokhale, Y. Yang, C. Baral <i>Bio-Medical Named Entity Recognition via Knowledge Guidance and QA</i> P. Banerjee *, K. Pal*, M. Devarakonda, C. Baral <i>Learning the UI language from Instructions Manuals</i> P. Banerjee , S. Mahajan, C. Baral, O. Riva <i>Reasoning about Effects of Actions using Transformers</i> P. Banerjee , C. Baral, M. Luo, A. Mitra, K. Pal, T. C. Son, N. Varshney <i>Weakly-Supervised Learning-to-Rank and Knowledge Segregation for Open Book Science QA</i> P. Banerjee , C. Baral <i>Unsupervised Question Answering: Trends, Challenges and Outlook</i> P. Banerjee , T. Gokhale, C. Baral <i>Robust Vision-and-Language Inference via Semantics-Transformed Adversarial Training</i> T. Gokhale, A. Chaudhary, P. Banerjee , C. Baral, Y. Yang <i>Unsupervised NLI using PHL Triplet Generation from Raw Text Corpora</i> N. Varshney, P. Banerjee , T. Gokhale, C. Baral <i>Natural Language QA Approaches using Reasoning with External Knowledge: A Survey</i> C. Baral, P. Banerjee , K. Pal, A. Mitra <i>Exploring ways to incorporate additional knowledge to improve NLQA</i> A. Mitra*, P. Banerjee *, K. Pal*, S. Mishra*, C. Baral <i>Explanation ReGeneration using Language Models and Iterative Re-Ranking</i> P. Banerjee	ICCV, 2021 EMNLP, 2021 ACL, 2021 AKBC, 2021 Findings of ACL, 2021 Findings of ACL, 2021 NAACL, 2021 EMNLP, 2020 EMNLP, 2020 EMNLP, 2020 ECCV, 2020 ACL, 2019 SSL@NeurIPS, 2020 ACM Health, 2021 Under Review Under Review Under Review Under Review Under Review Under Review CoRR, 2020 CoRR, 2019 TextGraphs-13, 2019

WORK EXPERIENCE	<p>Microsoft Research May 2021-Current <i>Research Intern</i>: Working on Vision and Language Semantic GUI Understanding with Dr. Oriana Riva.</p> <p>ASU - Cognition and Intelligence Lab Aug 2018-Current <i>Research Assistant</i>: Advisor Prof. Chitta Baral. Working on Neural Reasoning, Natural Language Understanding and Vision+Language. Also working on DARPA CHESS program to build NLP and Vision tools for Human-Computer Collaborative Software Security.</p> <p>Flipkart - User Identity & Insights Nov 2014 - August 2018 <i>Senior Software Development Engineer 3</i>: Built highly scalable systems to compute and serve User's identity information, personalization content and fraud detection data. Designed and developed components using Hadoop frameworks and tools. Developed User address based fraud detection leveraging User Graph. Feature enrichment and identification pipelines for supervised ML models such as Credit and Income Modelling of Users using E-Commerce affinities and User Graph attributes. Designed and developed internal tools for change-event propagation from MySQL to Elasticsearch, MySQL cluster management, One stop tool for User escalations and production issue management. Secured User PII data in system-system interactions and Big data usage. Developed several microservices like authentication and authorization services, address management services, rate limiting and rule engine based services. Worked on ML model engineering and productionising to ML problem modelling and data science. Designed ML model for creating selective incentives to push Users to higher segments, where a segment is defined as transactions per customer, lifetime value, gross merchandise value etc.</p> <p>Yahoo SDC- International Sports Team July 2014 - Oct 2014 <i>Software Development Engineer 1</i>: Enabled scaling of Sports Feed processing and extended APIs to support more sports to be served at Yahoo web scale.</p> <p>Indian Statistical Institute, Kolkata - Crypto Lab July 2013 - July 2014 <i>Research Assistant</i>: Advisor Prof. Goutam Paul. A Graph-Based FHE based on Homomorphic Bit Vector Encoding. Evaluated multiple schemes to exploit the hardness of graph path traversal algorithms and Homomorphic Bit Vector Encoding to derive a graph based FHE scheme.</p> <p>IIT Kharagpur, India - CNERG Lab Summer 2013 <i>Research Assistant</i>: Advisor Prof. Bivas Mitra. Detection and analysis of dynamic communities in time varying networks. We contrasted several community detection algorithms over time varying networks, built a test bed to analyze these algorithms. Derived useful insights of few community datasets, using these implementations.</p>
SKILLS	<p><i>Data Science</i> : PyTorch, Tensorflow, Keras, Scikit Learn, Apache Spark ML, Pandas <i>Languages</i> : Python, Java, C, C++, Scala <i>BigData</i> : Spark, MR, Hive, Hadoop, Pig</p>
AWARDS & HONORS	<p><i>University Doctoral Fellowship</i> 2018-2021 <i>Graduate College Travel Award</i> 2019-2021 <i>Engineering Graduate Fellowship</i> 2019-2021 <i>CS PhD Conference Fellowship</i> 2020-2021 <i>Flipkart Hackathon Winner (200 Teams)</i> 2016, 2018 <i>Microsoft AI Challenge Top 5 (500 Teams)</i> 2018 <i>Top 0.001% in the Joint Entrance Exam of the IITs & NITs (1.3M students)</i> 2010 <i>CBSE Undergraduate Fellowship</i> 2010-2014</p>
TEACHING	<p><i>Teaching Assistant: Principles of Programming</i> 2018 <i>Teaching Assistant: Natural Language Processing</i> 2019,2020 <i>Teaching Assistant: Frontier Topics in Vision and Language</i> 2021</p>
SERVICE & LEADERSHIP	<p><i>Co-wrote and awarded an NSF grant Award: Abstract 2132724 RI: Small: SM-An Active Approach for Data Engineering to Improve Vision-Language Tasks.</i> <i>Teaching and Research Awards Reviewer for the GPSA at ASU: 2019-21.</i> <i>Reviewer: NAACL 2021, AAAI 2021-22, CIKM 2020-21, EMNLP 2020-21, ACL 2020-22, EMNLP Workshop 2019-22</i> <i>Have lead and managed teams of size 2-4 on multiple projects in Flipkart.</i> <i>Organized and hosted a Seminar course on Vision and Language at ASU, Spring 2021.</i></p>

* Equal Contribution