BISWARUP BHATTACHARYA

Chicago, IL, USA ◇ Quant / Research / Software ◇ contact@biswarupb.com ◇ www.biswarupb.com

EDUCATION

University of Southern California (USC), Los Angeles, CA, USA　　　　　　(Aug 2017 – May 2019)
Master of Science (M.S.) in Computer Science　　　　　　　　　　　　　　　(Annenberg Fellow)

The London School of Economics and Political Science (LSE), London, England, UK　(Aug 2018 – Aug 2021)
Bachelor of Science (B.Sc. Honors) in Economics and Politics　　　　　　　　　(First Class Honors)

Indian Institute of Technology (IIT), Kharagpur, WB, India　　　　　　　　(Jul 2013 – May 2017)
Bachelor of Technology (B.Tech. Honors) in Electrical Engineering　　　　　　　(Department Rank 2/95)
Minor in Computer Science and Engineering & *Micro-specialization* in Embedded Wireless Systems

EXPERIENCE

Citadel LLC　　　　　　　　　　　　　　　　　　　　　　　　　　　(Jan 2021 – present)
Senior Quant Research Engineering Manager, Global Quantitative Strategies (GQS)　　*Chicago, IL, USA*

- Leading a team in the central data and research platform, specializing in predictive modeling, data science and engineering for alpha/portfolio construction/execution/analytics use cases. Responsible for everything from sourcing the data, to doing original research, to launching those ideas to market for real-time systematic trading with continuous monitoring for the whole firm globally.

Microsoft Corporation　　　　　　　　　　　　　　　　　　　　　　(Jun 2019 – Jan 2021)
Software Engineer II, AI Platform, Cloud & AI Division (C&AI)　　　　　*Bellevue/Redmond, WA, USA*

- Developed high performance, user-friendly, fully compliant, full-stack solutions for experiment authoring and analysis experiences in Microsoft's primary **experimentation** (ExP) platform
- Created new high performance APIs and systems for experiment management and data privacy, used by all customers
- Interacted closely with customers and data scientists to assess experiment success and trustworthiness
- Achieved radical performance and platform improvements across the ExP stack

University of Southern California　　　　　　　　　　　　　　　　　(Aug 2017 – May 2019)
Graduate Research Fellow & Graduate Research Assistant　　　　　　　　　*Los Angeles, CA, USA*

- Spearheaded **AI for social good** research efforts on multi-agent systems to design novel algorithmic vaccination strategies and health workers' visitation policies to maximize public health outcomes
- Researched on **multi-agent systems** to design models which achieved an overall increase of 30%+ in Quality Adjusted Life Years (QALY) over competitive baselines for a large range of networks
- Interacted closely with collaborators up to the field level to assess deployment challenges
- Published + presented 2 first-author research papers & successfully set up collaborations with various organizations

Indian Institute of Technology Kharagpur　　　　　　　　　　　　　(Feb 2016 – May 2017)
Undergraduate Researcher　　　　　　　　　　　　　　　　　　　　*Kharagpur, WB, India*

- Researched on **deep learning** to perform fault analysis and tackle economic dispatch problems in solar power grids
- Designed novel deep learning models to solve computer vision problems related to feature identification + classification, and improving safety in autonomous vehicles with generative adversarial networks (GANs)
- Collaborated with 3 students and published 6 first-author research papers

Adobe Research　　　　　　　　　　　　　　　　　　　　　　　　　(May 2016 – Jul 2016)
Research Intern, Advanced Technologies Lab (ATL)　　　　　　　　　　　　*Bangalore, KA, India*

- Designed a deployable machine learning-based reports **recommendation system** for Adobe Analytics which achieved practically significant NDCG, Precision, Recall & AUC improvements of 7%+ over competitive baselines
- Created a Chrome Extension (UI) to deliver the recommendations and receive feedback from analysts in real-time
- Interacted closely with multiple product managers and business analysts to discuss strategies at every stage
- Secured a Pre-Placement Offer (PPO), published 1 first-author research paper and filed 1 US patent
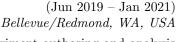
National Digital Library of India　　　　　　　　　　　　　　　　　(May 2015 – Jul 2015)
Software Engineering Intern　　　　　　　　　　　　　　　　　　　　*Kharagpur, WB, India*

- Key member of the first engineering team at NDLI – a INR 1 billion Government project

- Analyzed **pattern recognition**, OCR, and natural language processing (NLP) techniques to develop a software to identify and process metadata in over 7 million digital documents (used Java, C++, JSP, Apache, and APIs)
- Deployed the software which currently services over **1 million active users** (Library: http://ndl.iitkgp.ac.in)

AWARDS & ACHIEVEMENTS

- **USC Annenberg Graduate Fellowship** – Top few incoming PhD students at USC (2017 – 2019)
- **Sushma Mukhija Memorial Scholarship** (Best All-Rounder Award) – Among 1400 students at IIT Kharagpur (2017)
- **EECS All India Rank 1** in the Nationwide Education & Scholarship Test (NEST - I & II) twice (2016 – 2017)
- **O. P. Jindal Engineering & Management (OPJEMS) Scholarship** – Top 80 in India (2015)
- **Olympiads** (Physics, Chemistry, Mathematics, Linguistics, Cyber, Science) – Top ranker multiple times (2011 – 2013)
- **Kishore Vaigyanik Protsahan Yojana (KVPY-SA) Fellowship** – Top 0.1% in India out of 100K+ candidates (2012)
- **National (NTSE) Scholar** – Top 0.005% in India out of 500K+ candidates. Ranked 2nd in Karnataka state (2009)

SKILLS

- **Back end**: Python, C++, C#, SQL, C, Java, MATLAB, R
- **Front end**: HTML, CSS/SCSS, JavaScript, TypeScript, ReactJS, ReduxJS
- **Miscellaneous**: Microsoft Azure, K8s, TensorFlow, PyTorch, SciPy, Office UI Fabric, LaTeX
- **Research**: Multi-agent systems, POMDPs, social networks, computer vision, data mining, deep learning & power systems

RESEARCH PAPERS

(**Google Scholar**: *edSyl7IAAAAJ*, 200+ citations)

AI for Social Good

15. **Biswarup Bhattacharya**, Han Ching Ou, Arunesh Sinha, Sze-Chuan Suen, Bistra Dilkina & Milind Tambe. "TRACE: Algorithmic ACTS for Preventing the Spread of Recurrent Infectious Diseases on Networks." [**Long paper**] (**2018**)

14. **Biswarup Bhattacharya**, Han Ching Ou, Arunesh Sinha, Sze-Chuan Suen, Bistra Dilkina & Milind Tambe. "Repeated Active Screening of Networks for Diseases." *24th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), Epidemiology meets Data Mining and Knowledge discovery (epiDAMIK) Workshop* at London, UK. [**Oral, Long paper**] (**KDD '18**)
& *The Federated AI Meeting (FAIM) 2018, 16th Adaptive Learning Agents (ALA) Workshop* at Stockholm, Sweden. [**Oral, Long paper**] (**ICML/AAMAS/IJCAI '18**)
Invited to *The Knowledge Engineering Review* (Cambridge University Press) **journal special issue**
Awarded the **ICML 2018 Travel Award** to attend the conference

13. Nada Aldarrab, Victor Ardulov, **Biswarup Bhattacharya**, Su Lei, Han Ching Ou, Yilei Zeng. "Individualized Optimal Behavioral Interventions by Predicting Relapse." *University of Southern California*, Los Angeles, CA, USA. (**2018**)

12. **Biswarup Bhattacharya**. "Restless Bandits visiting Villages: A Preliminary Study on distributing Public Health Services." *ACM SIGCAS Conference on Computing and Sustainable Societies (previously ACM DEV)* at Menlo Park and San Jose, CA, USA. [**Oral, Long paper**] (**COMPASS '18**)

11. **Biswarup Bhattacharya**, Iordanis Fostiropoulos, Negarsadat Abolhassani, Qing Dong. "INFECT: Infection Estimation in Social Networks." *University of Southern California*, Los Angeles, CA, USA. (**2018**)

Recommender Systems

10. **Biswarup Bhattacharya**, Iftikhar Burhanuddin, Abhilasha Sancheti & Kushal Satya. "Intent-Aware Contextual Recommendation System." *17th IEEE International Conference on Data Mining, 5th International Workshop on Data Science and Big Data Analytics (DSBDA)* at New Orleans, LA, USA. [**Oral, Long paper**] (**ICDM '17**)
Awarded the **IEEE ICDM 2017 Student Travel Grant** to attend the conference

Computer Vision

9. **Biswarup Bhattacharya**, Arna Ghosh* & Somnath Basu Roy Chowdhury*. "Training Autoencoders in Sparse Domain." *32nd AAAI Conference on Artificial Intelligence, Student Abstracts* at New Orleans, LA, USA. (**AAAI '18**)
Awarded the **AAAI Scholarship** to attend the conference

8. Arna Ghosh, **Biswarup Bhattacharya*** & Somnath Basu Roy Chowdhury*. "AdGAP: Advanced Global Average Pooling." *32nd AAAI Conference on Artificial Intelligence, Student Abstracts* at New Orleans, LA, USA. (**AAAI '18**)

7. Arna Ghosh*, **Biswarup Bhattacharya*** & Somnath Basu Roy Chowdhury*. "SIMILARnet: Simultaneous Intelligent Localization and Recognition Network." *arXiv Preprint 1711.02831.* [**Long paper**] (**arXiv Nov '17**)

6. Arna Ghosh*, **Biswarup Bhattacharya*** & Somnath Basu Roy Chowdhury*. "Handwriting Profiling using Generative Adversarial Networks." *31st AAAI Conference on Artificial Intelligence, Student Abstracts* at San Francisco, CA, USA. Awarded the **IIT Kharagpur International Travel Grant** to attend the conference (**AAAI '17**)

5. Arna Ghosh*, **Biswarup Bhattacharya*** & Somnath Basu Roy Chowdhury*. "SAD-GAN: Synthetic Autonomous Driving using Generative Adversarial Networks." *30th Neural Information Processing Systems Conference, Deep Learning for Action and Interaction (DLAI) Workshop* at Barcelona, Spain. (**NeurIPS '16**)

AI in Electrical Power Systems

4. **Biswarup Bhattacharya** & Abhishek Sinha. "Deep Fault Analysis and Subset Selection in Solar Power Grids." *31st Neural Information Processing Systems Conference, Machine Learning for the Developing World (ML4D) Workshop* at Long Beach, CA, USA. (**NeurIPS '17**)

3. **Biswarup Bhattacharya** & Abhishek Sinha. "Intelligent Subset Selection of Power Generators for Economic Dispatch." *arXiv Preprint 1709.02513.* [**Full paper**] (**arXiv Sep '17**)

2. **Biswarup Bhattacharya** & Abhishek Sinha. "Intelligent Fault Analysis in Electrical Power Grids." *29th IEEE International Conference on Tools with Artificial Intelligence* at Boston, MA, USA. [**Oral, Long paper**] (**ICTAI '17**)

Miscellaneous

1. Somnath Basu Roy Chowdhury, **Biswarup Bhattacharya** & Sumit Agarwal. "Location Optimization of ATM Networks." *arXiv Preprint 1706.09243.* (**arXiv Jun '17**)

(* = equal contribution)

US PATENT

1. **Biswarup Bhattacharya**, Iftikhar Burhanuddin, Abhilasha Sancheti, Kushal Satya & Shriram Revankar. "Context-aware Recommendation System for Analysts." *US Patent number: US 10,846,617 B2.* (Granted 2020)

ACTIVITIES

- **Memberships**: AAAI, IEEE
- **Program Committee Member**:
  - International Conference on Advanced Computational Intelligence (ICACI) (2019)
  - Association for the Advancement of Artificial Intelligence (AAAI) Conference (2024)
  - International AAAI Conference on Web and Social Media (ICWSM) (2025)
  - IEEE Virtual Reality (VR) Conference (2025)
  - ACM CHI Conference on Human Factors in Computing Systems (CHI) (2025)
  - International Conference on Information Processing in Computer-Assisted Interventions (IPCAI) (2025)
- **Reviewer**:
  - IEEE Transactions on Cybernetics (2018 – present)
  - Expert Systems With Applications (2021 – present)
  - ACM Journal on Computing and Sustainable Societies (2023 – present)
  - ACM Transactions on Knowledge Discovery from Data (2024 – present)
  - Elsevier Information Sciences (2024 – present)
  - Elsevier Pattern Recognition (2024 – present)
  - Elsevier Neural Networks (2024 – present)
  - IEEE Transactions on Intelligent Transport Systems (2024 – present)
  - IEEE Signal Processing Letters (2024 – present)
  - IEEE Open Journal of Signal Processing (2024 – present)
  - IEEE Transactions on Circuits and Systems I: Regular Papers (2024 – present)
  - Machine Learning for Physical Systems (ML4PS) workshop, Neural Information Processing Systems (NeurIPS) (2024)
  - Foundation Model Interventions (MINT) workshop, Neural Information Processing Systems (NeurIPS) (2024)
  - Workshop on Mathematical Reasoning and AI (MATH-AI), Neural Information Processing Systems (NeurIPS) (2024)
  - Workshop on Creativity & Generative AI, Neural Information Processing Systems (NeurIPS) (2024)

- – Unifying Representations in Neural Models (UniReps) workshop, Neural Information Processing Systems (NeurIPS) (2024)
- – Machine Learning and Compression workshop, Neural Information Processing Systems (NeurIPS) (2024)
- – Causality and Large Models (CaLM) workshop, Neural Information Processing Systems (NeurIPS) (2024)
- – Safe Generative AI workshop, Neural Information Processing Systems (NeurIPS) (2024)
- – Engineering Research Express (2024 – present)
- **Volunteer**: United Nations (2018 – 2019)
- **Interests**: Piano, flying (student pilot license), sailing (US Keelboat Certification)