

BISWARUP BHATTACHARYA

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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
Thesis: “Health Monitoring of Electrical Power Grids using Artificial Intelligence” (Best project grade & 3 publications)

EXPERIENCE

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

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

RESEARCH PAPERS

(Google Scholar: [edSyl7IAAAAJ](#), 100+ citations)

AI for Social Good

- 9b. **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)
- 9a. **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
8. **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)

Recommender Systems

7. **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

6. **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
- 5b. 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)
- 5a. Arna Ghosh*, **Biswarup Bhattacharya*** & Somnath Basu Roy Chowdhury*. “SIMILARnet: Simultaneous Intelligent Localization and Recognition Network.” *arXiv Preprint 1711.02831*. [Long paper] (arXiv Nov '17)
4. 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. (AAAI '17)
3. 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

- 1+2. **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)
2. **Biswarup Bhattacharya** & Abhishek Sinha. “Intelligent Subset Selection of Power Generators for Economic Dispatch.” *arXiv Preprint 1709.02513*. [Full paper] (arXiv Sep ’17)
1. **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

- 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 & Shiram Revankar. “Context-aware Recommendation System for Analysts.” *US Patent number: US 10,846,617 B2*. (Granted 2020)

ACTIVITIES

- **Memberships:** AAAI, IEEE
- **Program Committee Member:** AAAI 2021
- **Reviewer:** IEEE Transactions on Cybernetics (2018 – present), Expert Systems With Applications (2021 – present), ACM Journal on Computing and Sustainable Societies (2023 – present)
- **Volunteer:** United Nations (2018 – 2019)