Prateek Chanda

Software Engineer (SCAI Center), Microsoft Research Lab, India
Google Scholar | ResearchGate | GitHub | LinkedIn
prateekkol21@gmail.com | +91-8337055526

Experience

Microsoft Research — **Technology for Emerging Markets** — Bangalore , India
Software Engineer, SCAI Center — Supervisor : Dr. Amit Sharma — Nov 2019 - Present

MindNotes - Application for mental health diagnosis

- Collaborating with NIMAHNs and ICARUS UI Design team to build an end-to-end internet based mental health application.
- Implemented an initial architecture for the app using Azure Bot Framework and Azure Cognitive Services - LUIS to understand patient query and showcase relevant mental health resources within the app.
- Built UI Pages (approx. 200 pages/components) for the app using react native and built response logging infrastructure.
- Based on system design reiterations, developed a generic navigation framework for content flow in react native that can be hosted on any CMS. Prototype - Sahay Framework
- Developed and shipped entire back end on Azure SQL Server using App Service for storing user responses and client/therapist details and other logistics.
- Integrated Microsoft Graph API with existing App Service for building a message communication framework between patients & therapists with support for audio and note sharing.
- Build NLP models Azure Cognitive services to build word embeddings from free text responses for detecting suicidal responses or sentiments for improving recommendations.
- Content Recommendation via causal inference learning and traditional matrix factorization methods.
- Design effective interventions including content/section recommendation service through causal inference analysis.

Let's Talk: Microsoft Teams App for Mental Health

- Worked in a team of 15 people and led the development group in building an end-to-end Microsoft teams application for recommending appropriate mental health resources within the workplace.
- Built the entire system using Azure Bot Framework to represent a chat framework where users can express their current emotional status and get recommended to appropriate HR resources within Microsoft to cater to their current emotional status.
- Awarded winner in Hackathon 2020 NGO under Microsoft Garage India under AI for Social Good.

FOSSASIA — **SUSI.AI (AI Based Chatbot)** — Singapore
Google Summer of Code — Technologies : Python , Javascript, Node.js, Git — Jun 2018 - Sept 2018

- Led the development for SUSI Smart Speaker prototype along with implementation of APIs for various SUSI skills.
- Implemented speech-to-text and text-to-speech functionality for the Smart Speaker system with improved voice recognition accuracy of 91%.

Complex Network Research Group — **IIT Kharagpur** — Kharagpur , India
Research Consultant (MHRD sponsored) — ***AI for Systems*** — Advisor : Niloy Ganguly — May 2019 - Nov 2019

- Performed a theoretical study on state of the art anomaly detection algorithms in enterprise systems and did a comparative study based on models using GANs and simple classication approaches
- Proposed a data-driven framework for real time anomaly detection/troubleshooting of large-scale storage system failures leveraging several data mining techniques on system logs like regression, clustering, Apriori, graph analytics **See project for details**

Research Intern (Microsoft Research Sponsored) — ***Multi-User Activity Recognition*** — Advisor : Bivas Mitra — May 2017 - Jun 2017

- Performed a theoretical study on traditional group activity recognition models.
- Based on temporal sensor data distribution, estimate missing data through Expected maximization algorithm
- Estimated Group formation over temporal sensor data like SSID-WiFI values
- Studied the correlation effect and casuality for different user features like GPA,locationData w.r.t group activity and formation
- Contributed to the theoretical analysis of the model (initial working of GroupSense) that got acknowledged in Paper. *Project Docs | Code*

Machine Intelligence Unit — **Indian Statistical Institute India** — Baranagar , India
Research Intern May '18 — Advisor : Dr. Ashish Ghosh — Project Report | Code

- Performed theoretical study on different Metric Learning algorithms to learn similarity metric from data distribution.
- Did an empirical analysis as well as evaluation of metric learning methodologies w.r.t different datasets like Iris, Wine Dataset, thus showcasing performance & limitations across various data distribution.

SunPy — **NASA Open Source Software | Solar Data Analysis in Python** — Remote, US
Google Summer of Code — Technologies : Python , Git — Dec 2016 - Apr 2018

- Collaborated with a team of 60 researchers to develop modules for efficient solar data retrieval, data processing and storage functionality for data analysis.
- Implemented a solar data retrieval system to collect solar data from solar observatories based on date in an SQL data base toanalyze different helio-features from the data over a period of 10 years. Used by the SunPy project.
- Implemented proposed solar image processing algorithm from research paper achieving 18% improved memory utilization and better feature extraction with less noise. Got acknowledged along with researchers at NASA Goddard Space Flight Center in nine Software Releases.

Publications

- **MINDNOTES: A Mobile Platform to enable users to break stigma around mental health and connect with therapists**: CSCW 2021
  ***Prateek Chanda**, Amogh Wagh, Jemimah A Johnson, Swaraj Renghe, Vageesh Chandramouli, George Mathews, Sapna Behar, Poornima Bhola, Girish Rao, Paulomi Sudhir, TK Srikanth, Amit Sharma, Seema Mehrotra*
- **Avoiding Past Choice Regrets: A Game Theoretic Community Detection using Temporal Information**: Under Review at ACAI ***Prateek Chanda**, Susanta Chakraborty*
- **Real Time Failure Prediction by Mining Execution Logs in LargeScale Cloud Environments**: Under Review PAKDD
  ***Prateek Chanda**, Soumik Ghosh, Niloy Ganguly, Bivas Mitra*
- **A Novel Graph Based Clustering Approach to Document Topic Modeling**: Accepted *9th ICCCNT 2018, IISc*
  ***Prateek Chanda**, Asit Kr Das*
- **SunPy A Python package for Solar Physics**: Journal Paper *Journal of Open Source Software 2020*
  *Stuart Mumford, **Prateek Chanda**, The SunPy Community*
- **SunPy v1. 0, the community-developed, free and open-source solar data analysis environment for Python.** : Journal Paper *American Geophysical Unit / NASA ADS 2019* *Stuart Mumford, **Prateek Chanda**, The SunPy Community*
- **The sunpy project: Open source development and status of the version 1.0 core package**: *The Astrophysical Journal 2020, IOP*
  *Stuart Mumford, **Prateek Chanda**, The SunPy Community*

Projects More projects on GitHub : prateekiiest/repositories

Graph Based Clustering Document Topic Modelling
- Designed a novel clustering algorithm based on importance factor calculation of nodes in complex networks with improved accuracy compared to traditional graph based methods. - 9th ICCCNT 2018, IISc, IEEE

Real Time Anomaly Detection in Enterprise environment - NetApp Collaboration ***Advisor Niloy Ganguly***
Proposed a novel anomaly detection along with failure prediction in an enterprise setting with modules/microservices interacting with each other. Studied how module/microservice interaction changes w.r.t time within the normal period and the anomaly period. For online phase, based on logging intervals proposed a thresholding mechanism to indicate if the corresponding next logging interval is anomalous based on previous behaviour. Presented our method to researchers at NetApp for different enterprise datasets like Hadoop, IBM Bluegene.

Shellix - UnIX Implementation of Shell Designed a robust implementation of shell for Unix based systems in C++ with all common features supported under bash with an improved user interface. - Github
Chat Systems Architected one-one and multi-user chat systems using Computer Networks concepts. GitHub
Syntalizer Engineered a simple top down parser for syntax analysis of unambiguous LL grammars in C++. GitHub
Microsoft Garage Hack - Covid vaccine distribution App with game theory strategy - ***Sayantan Roy Senior PM Microsoft***
Proposed and contributed developing prototypes for app to distributing covid vaccines in Bangalore with as a proof of concept. Proposed and developed a game theoretic based community detection model in Python to effectively track urgent areas for vaccines. Presented our demo with Dev COGS BG team - Garage Project

Achievements

- **Microsoft Garage Hackathon 2020**: Recipient of Hackathon 2020 NGO award from Microsoft Garage India under AI for Social Good.
- **GAABESU research award IIEST**: Received GAABESU(IIEST) research award for research contributions for academic year 2018
- **JBNSTS Scholar**: Jagadis Bose National Science Talent Search - 2013
- **RMO**: Qualified for Regional Mathematics Olympiad
- **AIEEE Merit**: Within top 0.26% of applicants in All India Engineering Entrance Exam approx. 1.3 million people
- Qualified for **Facebook HackerCup 2019** & **Google Kickstart 2019**
- **World CodeSprint**: Secured a rank within top 0.2% worldwide in programming contest held on Hackerrank
- **BOSS 2017**: Within 0.08% top open source contributors from India in open source coding competition

Skills

- **Languages**: Python, C++, SQL, Java, C#, TypeScript **Technologies**: Azure, Azure ML Studio, GitHub, GitLab, Jekyll, GCP
- **Libraries**: TensorFlow, PyTorch, Scikit-Learn, Pandas, Jupyter, Microsoft Graph SDK

Education

Indian Institute of Engineering Science and Technology, Shibpur Howrah, India
Bachelor of Technology in Computer Science & Engineering; *First Class Honors* GPA: 8.9/10.0 WES: 10/10 2015 - 2019

Thesis: *Avoiding Past Choice Regrets: A Game Theoretic Community Detection using Temporal Information* Advisor: Dr.Susanta Chakraborty
Relevant Coursework: Data Structures & Algorithms, Operating Systems, Database Management, Cloud Computing & Big Data, Machine Learning & AI, Probability & Statistics, Discrete Structures, Computer Graphics,Computer Networks, Computer Architecture

Positions of Responsibility

- **Program Committee for ODD SIGKDD workshop** 2021 - Workshop Link
- **Reviewer** for IEEE Transactions on Mobile Computing , COMSNETS, Journal of Open Source Software
- **Google Code In**, **GSoC Mentor** : Mentored over 80 students under Google Code In 2018, Hacktoberfest 2018, 2017
- Leading the open source club at Campus as a GitHub Campus Expert - organising hackathons and open source mentorship programs in campus and engaged students from different departments in open source