SUBHALINGAM D

ACADEMIC DETAILS

Year	Degree / Board	Institute	GPA / Marks(%)
---	B.Tech in Mathematics & Computing	Indian Institute of Technology, Delhi	8.005
2018	CBSE Std. XII	Chennai Public School, Chennai	96.4%
2016	CBSE Std. X	Chennai Public School, Chennai	10/10

INTERNSHIPS

- **Samsung R&D Institute, Delhi** | **Intelligence S/W Team** | Sound Source Localization, Tracking & Separation *Jun '21 - Jul '21*
  - Developed **sound source direction estimation** module using time delay of arrival between mics for **real-time audio** input
  - Added modules for **tracking active sources** & extracting signals of **individual tracked sources** for object identification
  - Included **stationary noise estimation** module for background noise removal; achieved maximum localization error of **7°**
- **MateRate Education Pvt Ltd, Delhi** | Intelligent Adaptive Learning for K-12 Students *May '20 - Jul '20*
  - **Machine Learning Researcher & Developer** | Modelled latent knowledge space of students by tracking their performance
    - Trained ML models based on **Item Response Theory** to estimate ability of **5000+ students** & difficulty of **200+ questions**
  - **Backend Web Developer & AWS Associate** | Results Portal development & System Operations Management on AWS
    - Designed database schema, built **Web APIs** using **Django REST framework** & ideated system design for production
    - Deployed Django backend to **EC2** with MySQL database on **RDS** & React frontend to **S3** with **CloudFront** CDN integration
    - Set up **Auto Scaling group** with scaling policies & attached **Load Balancer** for traffic-based dynamic horizontal scaling
  - *Received **Letter Of Recommendation** from CEO for exemplary work accomplishments in multiple roles & work ethics*

TECHNICAL SKILLS

Programming Language: Python, Java, C, C++, MATLAB   **Web Development:** CSS, MySQL, PHP, Django, jQuery
Data Science: TensorFlow, Keras, NLTK, Pandas, NumPy   **Other Skills:** AWS, Bash, Git, HPC, LaTeX

PROJECTS

- **Tracking Entities in Technical Procedures**   **Prof. Srikanta Bedathur** & **Prof. Maya Ramanath** | *Feb '21 - Ongoing*
  - Prepared a dataset consisting of **1351 procedures** by **scrapping WikiHow pages** from *Computers and Electronics* category
  - Developed baseline models to predict actions taken & **changes in properties of entities** involved at each step of a process
  - Conducted error analysis & statistical tests; **co-authoring the paper**; project in collaboration with **IBM AI Horizons Network**
- **Corporate Bankruptcy Prediction**   **Prof. Niladri Chatterjee** | *Feb '21 - Apr '21*
  - Reviewed state-of-the-art models & observed poor recall; explored methods to deal with **missing values** & **class imbalance**
  - Trained ensemble model on Polish companies dataset using **Mean Imputation** & **SMOTE**; achieved **10% recall improvement**
- **Adaptive Neuro-Fuzzy Inference System for Diabetes Prediction**   **Prof. Niladri Chatterjee** | *Nov '20 - Jan '21*
  - Trained a Takagi–Sugeno type **fuzzy neural network** in **TensorFlow** for diabetes prediction & obtained **81.3%** accuracy
- **Extended Vector Space Model for News Articles Retrieval**   **Prof. Srikanta Bedathur** | *Oct '20 - Nov '20*
  - Implemented end-to-end retrieval system indexed with **TF-IDF** weights; supported prefix search & named entity restriction
  - Compressed index file by encoding differences between document IDs & **reduced size by half** *(topped class leaderboard)*
  - Used **pseudo-relevance feedback** based probabilistic **query expansion** for reranking aimed at improving **precision**
- **Triangulation Topology Analysis using Graph Theory**   **Prof. Subodh Kumar** | *Oct '19 - Nov '19*
  - Generated generic **Graph** data structure to store triangles, points & edges for given triangulation topology of 3D shapes
  - Implemented traversal algorithms to get neighbours, boundary edges, count of connected components & closest components
- **Priority-based Job Scheduler**   **Prof. Subodh Kumar** | *Sep '19 - Oct '19*
  - Implemented **Trie**, **Red-Black Tree** & **Max-Heap** to execute jobs from users for projects based on priorities & resources

POSITIONS OF RESPONSIBILITY

- **Overall Coordinator** | **Mathematics Society** | Led Web Development, Blog & Social Media teams *Jul '20 - Ongoing*
  - Designed, developed & released the website & blog; moderated blog posts; played key role in facilitating technical activties
- **Web Development Executive** | **Student Incubation Cell** | Developed the Entrepreneurship Portal *Sep '19 - Jul '20*

EXTRA CURRICULAR ACTIVITIES

- **Language Mentor** | Assisted newcomers regularly to improve their English language communication skill *Aug '19 - Dec '19*
- **Technical Executive** | **Rendezvous '19** | Part of the Web Frontend Development team *Aug '19 - Oct '19*
- **Active Volunteer** in **National Service Scheme (NSS)** | Over 120 hours of community work primarily in Teaching projects

SCHOLASTIC ACHIEVEMENTS

- Qualified in **Cambridge English: Preliminary (PET)** *(B1 Preliminary for Schools)*, conducted by **University of Cambridge**
- Completed **Deep Learning Specialization**, offered by *deeplearning.ai* on Coursera *May '20*