

Sayan Goswami

EDUCATION	<p>Universitat Pompeu Fabra, Barcelona, Spain <i>2020 - Present</i> <i>Master of Science</i>, Intelligent Interactive Systems</p> <p>Jadavpur University, Kolkata, India <i>2016 - 2020</i> <i>Bachelor of Engineering</i>, Electronics & Telecommunication Engineering GPA: 9.28/10</p>
EXPERIENCE	<p>Mentor, Google Summer of Code, mpack.org <i>May '21 - Present</i> Guiding mentees on multi-objective optimization methods for mpack, a C++ ML library.</p> <p>Research Fellow, AI Research Institute (IIIA-CSIC), Barcelona <i>Nov '20 - Present</i> Applying RL to model realistic behaviour of NPCs in simulation environments.</p> <p>Developer Associate, Samsung R&D Institute, Bangalore <i>May '19 - Jul '19</i> Significantly decreased latency, increased throughput over QUIC protocol for wireless use.</p> <p>Mentor, Deep RL Nanodegree, Udacity <i>Jul '19 - Jan '20</i> Guided students taking Udacity's Deep RL "Nanodegree", weekly meetings, coursework.</p> <p>Research Fellow, VIP Lab, IIT Bombay <i>May '18 - Jul '18</i> Worked on deep learning (CNNs, GANs) based CV methods for image co-segmentation with <i>Prof. Subhasis Chaudhuri</i>.</p> <p>Research Assistant, AI Lab, Javapur University <i>Aug '18 - May '20</i> Worked on multi-agent RL, game theory, neural control interface & algorithms research with <i>Prof. Amit Konar</i>.</p> <p>Community Mentor, CNN Course, Coursera <i>Jan '18 - Jul '19</i> Guided students taking Andrew Ng's CNN course on Coursera via community forums.</p> <p>Researcher, NLP Lab, Javapur University <i>Jul '17 - Apr '19</i> Worked on NLP methods for abstractive text summarization with <i>Prof. Sudip K. Naskar</i>.</p>
AWARDS & ACHIEVEMENTS	<p>Awarded JAE Intro ICU Fellowship by the Spanish National Research Council (CSIC) in 2020.</p> <p>Awarded Summer Research Fellowship by the Indian Academy of Sciences in 2018.</p> <p>National Finalist at Automate for the Bank hackathon organised by State Bank of India in 2018.</p> <p>Secured a National Rank of 228 in WBJEE amongst 150,000 candidates in 2016.</p> <p>Secured a National Rank of 26, Zonal Rank of 2 in National Cyber Olympiad in 2016.</p> <p>Regional Finalist at TCS IT Wiz Quiz (top 3/100 teams) in 2015.</p>
KEY SKILLS	<p>Programming: Python, Golang, C++/C, Unix Scripting, Git, Tensorflow, Pytorch, Keras, MATLAB, Java/Kotlin (Android), Haskell, L^AT_EX, Assembly (x86, MIPS), Verilog, SQL, HTML, ReactJS, Redis, Django</p> <p>Machine Learning & Data Analysis: Reinforcement Learning (Factored MDP, Bandits, Options Framework), Deep Learning (CNNs, RNNs, GANs), Machine Learning (SVM, KNN, Decision Trees, Bayes)</p>

PUBLICATIONS	<p>“Brain Signal Analysis for Mind Controlled Type-Writer Using a Deep Neural Network” – 5th WiSPNET, 2020, Rohini Das, Sayan Goswami, Sayantani Ghosh, Mousumi Laha, Chandrima Debnath and Amit Konar</p> <p>“Relationship between Nash Equilibria and Pareto Optimal Solutions for Games of Pure Coordination” – 10th ICCCNT, 2019, Rohini Das, Sayan Goswami and Amit Konar</p> <p>“Application of Deep Neural Network on Image Co-segmentation” – Indian Academy of Sciences SRF Report, 2018, Sayan Goswami and Subhasis Chaudhuri</p>
SELECT PROJECTS	<p>bandit.rl – A k-armed bandit test bed implementation for comparing various reinforcement learning algorithms.</p> <p>mlpack/ensmallen – Implemented a framework for multi-objective optimization in the C++ machine learning library mlpack.</p> <p>rtx.go – A brute force ray tracing implementation.</p> <p>eightyfive – An emulator for Intel’s 8085.</p> <p>ysh – An UNIX shell implementation.</p> <p>gobi – An in-memory database with a query language.</p> <p>infinity – A signed, arbitrary precision decimal arithmetic library for C++, dynamically linked at compile time.</p> <p>Deep Co-segmentation – Deep object co-segmentation with deep convolutional neural networks using a siamese architecture.</p> <p>SegNet – Semantic image segmentation using deep convolutional auto-encoders.</p> <p>flow – Visualiser for control flow of arbitrary python code.</p> <p>fsmutil – A finite state machine generator for binary sequence detection.</p> <p>Pyscuss – A real time messaging app, uses web sockets, non-persistent sessions.</p> <p>bfutil – An interpreter for the BF language and a translator from BF to C with optimisations.</p> <p>LinkTo – An URL shortener with analytics dashboard, built using Flask framework, uses Redis as datastore.</p>
REFERENCES	Available on request.