

Satya Borgohain

RESEARCH FELLOW | DATA SCIENTIST

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EDUCATION	<p>Monash University, VIC, Australia <i>Master's Degree</i>, Data Science (Advanced Analytics with Minor Thesis) <i>Feb' 18 - Dec' 19</i> First Class Honours (3.67 GPA / Grade H1)</p> <p>Nagpur University, Maharashtra, India <i>Bachelor's Degree</i>, Mechanical Engineering <i>Aug' 11 - Jul' 15</i> First Class</p>
RESEARCH INTERESTS	Machine learning, Computer vision, Speech and Natural Language Processing (NLP), Uncertainty and Interpretability in AI
RESEARCH PAPERS	<p>Borgohain, S., Kowadlo, G., Rawlinson, D., Bergmeir, C., Loo, K., Rangarajan, H., & Kuhlmann, L. (2020, November). Self-organising Neural Network Hierarchy. In <i>Australasian Joint Conference on Artificial Intelligence</i> (pp. 359-370). Springer, Cham.</p> <p>O'Neill, L., Angus, S., Borgohain, S., Chmait, N., & Dowe, D. L. (2021). Creating Powerful and Interpretable Models with Regression Networks. <i>arXiv preprint arXiv:2107.14417</i>.</p> <p>Borgohain, S., Ackermann, K., & Loaiza-Maya, R. (2022). Bayesian Neural Network Versus Ex-Post Calibration For Prediction Uncertainty. <i>arXiv preprint arXiv:2209.14594</i>.</p> <p>Borgohain, S., Anantharama, N., O'Neill L., Angus, S. (2022). Extracting Low Dimensional Narratives from News Corpora with N-Maps. Working Paper.</p>
AWARDS & ACHIEVEMENTS	<p>Academic Excellence Certificate from Monash Faculty of IT <i>2020</i></p> <p>Monash Industry Team Initiative (MITI) Scholarship <i>2019</i></p> <p>Faculty of Information Technology International Merit Scholarship <i>2018</i></p>
PROFESSIONAL EXPERIENCE	<p>Research Fellow <i>SoDa Labs, Monash University Clayton, Victoria</i> <i>Dec '19 - Present</i></p> <p>Machine Learning researcher and DevOps engineer for cloud platform operations. Research and engineering efforts include: Bayesian Neural Networks & post-hoc methods for well-calibrated predictions, interpretable Deep Learning with Regression Networks, sparse (and efficient) neural nets, multimodal analysis using text & audio in legal settings, and applying Natural Language Processing (transformers) for narrative extraction around cycles of disadvantage in Australia.</p> <p>Research Assistant <i>SoDa Labs, Monash University Clayton, Victoria</i> <i>Sep '18 - Nov '19</i></p> <p>Developed and deployed the Forum Brain Analytics application, which provides an automated online forum grading platform for course units, leveraging NLP. Implemented modules for the Monash IP Observatory, and created data pipelines for ingesting high volume of unstructured, text data (including Twitter) from the web on the AWS cloud stack.</p> <p>Machine Learning Engineer <i>MotionAI Melbourne, Victoria</i> <i>Aug '18 - Apr '19</i></p>

Developed a [prototype](#) for providing aid to the elderly in aged care using 2D pose estimation and Human Activity Recognition (HAR) on edge devices (Raspberry Pi). Implemented MobileNet using OpenPose implementation with Tensorflow backend and OpenCV, to enable fast inference/classification of human poses in near real-time.

Monash Industry Team Initiative (MITI) Summer Intern

Fonterra | Cobden, Victoria

Dec '18 - Feb '19

Audited on-site factory operations to identify paper dependency and roadblocks to better performance in processes. Investigated digital platforms and tools to enable integration of a site-based system into the manufacturing environment and facilitate data capture, analysis, and problem-solving ability. Successfully developed and deployed a web/mobile application to capture and retrieve on-site data and provide real-time troubleshooting solutions, and further demonstrated the findings to stakeholders.

Systems Engineer (Software Developer)

Tata Consultancy Services | Nagpur, India

Nov '15 - Jan '18

Full-stack developer for a cluster of applications/models for an in-house data analytics platform which consisted of custom-built tools for modeling predictive capability on various project outcomes such as delivered defects, schedule adherence, program risk management, control and management of incident arrival rate. Furthermore, implemented dashboards with suggestive action planning, and enhanced dashboard capabilities with reporting functionalities for distinct user groups.

PROJECTS

- [PRF Narratives of Disadvantage](#) - Developed Narrative Exploration Maps (N-maps) which leverages NLP on large news corpora extract topical, macro-narratives across time. 2022
- [PaperTool](#) - An open-source DIY template for setting up your own end-to-end working paper site. 2021
- The [Melbourne Experiment App](#) - A web app for the landmark interdisciplinary research collaboration studying the effects of COVID-19 on the functions of a city and an international model for post-COVID-19 urban recovery and renewal. 2020
- [Monash IP Observatory](#) - A platform which can remotely observe, in real time, the quality of the internet at any location on the globe and publishes the results of these observations in clear, accessible visualizations. 2020
- [DataFluency Workshop](#) - Hands-on workshop for data wrangling & analysis. 2020
- [Forum Brain](#) - An EduTech tool for automated online forum grading using NLP. 2019
- [Pose Estimation and Detection](#) - A prototype for HAR/detecting falls in aged care facilities. Code has been open sourced for the community. 2019

PROGRAMMING SKILLS

Languages: Python, R, SQL, Bash (Shell), Java, JavaScript
Frameworks: PyTorch, TensorFlow/Keras, Scikit-learn, Pandas, Numpy, Flask, ReactJS, d3.js
Tools: AWS, GCP, Linux, Git, Tableau, Jupyter, Excel, MySQL, PostgreSQL, MongoDB

SEMINARS & ASSOCIATIONS

Seminars Presentations: [NAISys 2020](#) (From Neuroscience to Artificially Intelligent Systems) at Cold Spring Harbor Laboratory, New York & [AJCAI 2020](#) (Australasian Joint Conference on Artificial Intelligence) at Canberra, Australia.
Professional Memberships: [Association for Computing Machinery](#) (ACM), [Association for the Advancement of Artificial Intelligence](#) (AAAI) & [IEEE](#).

REFERENCES

[Simon Angus](#), Associate Professor, (Department of Economics, Monash University)
[Paul Raschky](#), Professor (Department of Economics, Monash University)
[Christoph Bergmeir](#), Senior Lecturer (Department of Data Science AI, Monash University)