Anthony G.X. Chen

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Education

Ph.D. Data Science - New York University   2021 - ongoing
Advisor: **Prof. Rob Fergus**
Cumulative GPA: 4.0/4.0

M.Sc. Computer Science - McGill University / Mila   2019 - 2021
Thesis Co-advisors: **Prof. Joelle Pineau**, **Prof. Blake Richards**
Thesis: **On Successor Representations for value learning: efficient credit assignment through implicit models**
Cumulative GPA: 4.0/4.0

B.Sc. Major in Neuroscience - McGill University   2015 - 2019
Cumulative GPA: 3.98/4.0

Publications

[*] **GX-Chen, Anthony**, Kenneth Marino, Rob Fergus. "Is the Hard Exploration Problem Still Hard? Semantic-Level Model-based Planning." *Under Submission* (2024).

[*] **GX-Chen, Anthony**, Veronica Chelu, Blake A. Richards, and Joelle Pineau. "A Generalized Bootstrap Target for Value-Learning, Efficiently Combining Value and Feature Predictions." *Proceedings of the AAAI Conference on Artificial Intelligence* (2022).

Zhang, Wancong, **Anthony GX-Chen**, Vlad Sobal, Yann LeCun, and Nicolas Carion. "Light-weight probing of unsupervised representations for Reinforcement Learning." *arXiv preprint arXiv:2208.12345* (2022).

[*] **GX-Chen, Anthony**, Veronica Chelu, Blake Richards, Joelle Pineau. "Lambda Successor Return Error." *NeurIPS Workshop on Biological and Artificial Reinforcement Learning* (2020).

Chen, Anthony G., David Benrimoh, Thomas Parr, and Karl J. Friston. "A Bayesian Account of Generalist and Specialist Formation Under the Active Inference Framework." *Frontiers in Artificial Intelligence* 3 (2020). https://doi.org/10.3389/frai.2020.00069.

Patel, Raihaan, Christopher J. Steele, **Anthony GX Chen**, Sejal Patel, ... and M. Mallar Chakravarty. "Investigating microstructural variation in the human hippocampus using non-negative matrix factorization." *Neuroimage* 207 (2020): 116348.

Trakadis, Yannis J., Sameer Sardaar, **Anthony Chen**, Vanessa Fulginiti, and Ankur Krishnan. "Machine learning in schizophrenia genomics, a case-control study using 5,090 exomes." *American Journal of Medical Genetics Part B: Neuropsychiatric Genetics* 180, no. 2 (2019): 103-112.

[*] Indicate first-author works most representative of current research interests

Selected Experience

Data Science Intern - Microsoft - Greater Seattle Area   Summer 2019

· Industry research in NLP, developed unsupervised information extraction methods using word embeddings.

· Improved mention extraction F1 score by over 62% (relative), specifically focusing in biomedical domains.

Research in Computational Neuroscience - Douglas Hospital - Montreal
Supervised by **Prof. Mallar Chakravarty**   2017-2019

· Honed skills in MRI data analysis and research. Investigated data-driven methods for unsupervised categorization of behaviourally relevant brain sub-regions, using multi-model neuroimaging data (2017).

· Devised new method for discovering clinical subgroups in Alzheimer's disease for early intervention (2018).

· Enhanced presentation skills through multiple poster presentations and an invited talk on the above projects.

Software Engineering Intern - Microsoft - Greater Seattle Area Summer 2018

· Developed engineering skills at scale. Leveraged distributed cloud computing in building metrics pipeline for data visualization and analytics. Improved number of valuable business insights by >500% with ability to add more.

· Scalable and efficient design allows for rapid analysis of millions of records to meet Microsoft Azure's data needs.

Research in Theoretical Neuroscience - UCL - London, UK
Supervised by **Prof. Karl Friston** Spring 2018

· Cognitive modelling of human behaviour. Developed variational Bayesian model of habit formation.

Research in Genomics - McGill University Health Centre - Montreal
Supervised by **Dr. Yannis Trakadis** 2016 - 2018

· Sharpened skills in clinical research, investigated genetic risk factors for schizophrenia with clinical applications.

· Honed leadership and management skills, supervised student researchers in a clinical psychiatry literature review.

Awards

Canada Graduate Scholarship, Doctoral (CGS-D) ($105,000) - NSERC (Canada) Sept 2021

Offered to top-ranked applications in the Postgraduate Scholarship Doctorial (PGS-D) program to reward and retain high-calibre doctoral students at Canadian institutions. (Offered, declined)

Postgraduate Scholarship, Doctoral (PGS-D) ($63,000) - NSERC (Canada) April 2021

Awarded to high-calibre scholars engaged in doctoral programs in the natural sciences. Selected on the basis of research ability & potential, communication, interpersonal, and leadership abilities.

FRQNT Master's Scholarship ($17,500) - Fonds de Recherche du Québec April 2020

Awarded to top applicants in natural sciences, based on academic excellence, research potential, scientific quality of research proposal, and leadership and communication skills.

Master's Excellence Scholarship ($10,000) - Centre UNIQUE and McGill University Feb. 2020

Scholarship for interdisciplinary research in AI *and* neuroscience. Selected based on scientific quality of the M.Sc. project, and the academic and research excellence of the student.

Canada Graduate Scholarship, Master's ($17,500) - Canadian Institutes of Health Research Aug. 2019

Scholarship for high-calibre scholars who are engaged in eligible master's. Selected based on academic excellence, research potential, personal characteristics and interpersonal skills.

2nd Place, Brain@McGill Undergraduate Prize ($200) - McGill University Aug. 2019

Awarded based on final year neuroscience research project and essay submission. Invited presentation at the Intergrated Program in Neuroscience Graduate Retreat in Fall 2019.

1st Place, Research Expo - Douglas Mental Health University Institute Aug. 2017

Awarded at the undergraduate research expo for work done on unsupervised learning application to medical imaging analysis.

NSERC Undergraduate Research Award ($4500) - Faculty of Medicine, McGill University April 2017

Awarded to young potential researchers to fund a 16-weeks summer research project. Awarded through the highly competitive Faculty of Medicine at McGill.