Man Yeung (Andy) Tai

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Personal Information

Field	Details
Name	Man Yeung Tai (Andy)
Nationality	Canadian
Date & Place of Birth	October 25, 1994; Vancouver, Canada
Languages	English (Native); Cantonese (Fluent); German (Beginner); Mandarin (Conversational)
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Research Interests

I am an empirical who applies machine learning to address pressing public health challenges. My research interests are: **machine learning for public health public healthcare modeling, clinical decision support, espcially for vulnerable population research**.

Methodology:

- Applied machine learning: ensemble methods (Random Forest, XGBoost), deep learning, NLP/transformers
- Statistical modeling: meta-analysis, survival analysis, predictive modeling
- Human-centered AI: clinical decision support systems, interpretability, ethical AI deployment

Major Applications:

- Addiction medicine and overdose risk prediction
- Mental health and digital health interventions
- Clinical decision support for vulnerable populations
- Maritime security and anomaly detection

Key Scientific Metrics

Metric	Value
Publications	11 peer-reviewed
Third-party Funding	CAD $1.4M (Health Canada, as Co-Investigator)
Teaching	550+ graduate students across 10+ courses
Scholarships	Mitacs Globalink Research Award

Academic Experience

Period	Position	Institution
Jul 2024 - present	**Postdoctoral Teaching & Learning Fellow** Primary instructor across 10+ courses (data visualization, probability, databases, tooling) Curriculum leadership: Co-author *The Regression Cookbook*; GenAI integration frameworks Capstone supervision: CDL Venture Analytics, UBC Cybersecurity, NCIS Maritime Analysis Service: Statistics EDI Committee Postdoctoral Representative (Sep 2025 - present)	Master of Data Science, Dept. of Statistics, UBC (Vancouver, Canada)

Education Background

Period	Degree	Institution	Details
Sep 2019 - Apr 2024	**PhD in Neuroscience** (Fast-track from MSc)	University of British Columbia Vancouver, Canada	Thesis: "A machine learning approach to overdose risk assessment" Supervisor: Dr. R. Michael Krausz Committee: Dr. A. Kazemi, Dr. R. Ng, Dr. C. Schuetz
2012 - 2017	**Honours BSc**	University of Toronto Toronto, Canada	Major: Neuroscience Minors: Environmental Science, Religion

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Research Grant Experience

Active Grants:

Grant	Role	Agency	Amount	Period
Risk Assessment and Management Platform (RAMP)	Co-Investigator	Health Canada (SUAP)	CAD $1.4M	2019 - present

Details: Developed machine learning models for overdose risk prediction using BC Provincial Overdose Cohort (36,679 cases). Models achieved 88.77% accuracy and 91.12% AUROC. Platform integrates clinical decision support for healthcare providers across British Columbia.

Scholarships and Funding

Year	Award	Agency	Amount
2022 - 2023	**Mitacs Globalink Research Award** Research visit at University of Sydney, Brain & Mind Centre	Mitacs Canada	CAD $6,000
2024	**President's Academic Excellence Initiative**	UBC	Fellowship funding

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Ongoing Research Projects

"Machine Learning for Overdose Risk Assessment" Sep 2019 - present
Collaborating with UBC, BC Centre for Disease Control, Health Canada

- Systematic review and meta-analysis of ML models for opioid-related outcomes
- Predictive modeling using Random Forest and XGBoost on BC Provincial Overdose Cohort
- Clinical decision support system development and deployment

"Maritime Criminal Detection System (HAVA)" Jul 2025 - present
Collaborating with Clause Technology, NCIS

- Agentic system with automated web scraping and NLP-based incident classification
- BERT/NER for entity recognition; LLM-assisted similarity de-duplication
- Dockerized architecture (MongoDB/PostgreSQL); achieved 65% reduction in manual triage time

"GenAI Integration in Data Science Education" Jul 2024 - present
UBC Master of Data Science Program

- Framework for responsible GenAI use in graduate education
- AI-resilient assessment design; policy development for academic integrity

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Industrial and Consulting Experience

Period	Role	Organization	Details
Jul 2025 - Oct 2025	**Data Science Consultant**	Clause Technology (Vancouver)	Maritime criminal detection; NLP pipelines; Dockerized deployment
Apr 2024 - present	**Analyst**	NAI Innovations (Vancouver)	ML-driven startup evaluation; medical cannabis analytics
Apr 2024 - Sep 2024	**Data Scientist**	Concussion RX (Vancouver)	ML for concussion subtype analysis; clinical pipeline development
2018 - 2019	**Research Assistant**	ACD Group, UBC	E-Mental Health platforms; RAMP development

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Professional Service

University Committee Service:

Period	Role	Organization
Sep 2025 - present	Postdoctoral Representative, SEDI Committee	UBC Dept. of Statistics
Nov 2025	Judge, Science Case Competition	UBC Faculty of Science

Editorial Service:

Period	Role	Journal
Sep 2021 - Sep 2024	Associate Editor	URNCST Journal

International Cooperations

Cooperations in Australia:

- Prof. Ian Hickie, University of Sydney (Digital Mental Health)
- Dr. Frank Iorfino, University of Sydney (Youth Mental Health Prediction)

Cooperations in Germany:

- Prof. Stefan Lessmann, Humboldt University Berlin (AI in Business)
- Prof. Rebekah Overdorf, Ruhr University Bochum (Privacy-Preserving ML)

Cooperations in Canada:

- Dr. Raymond Ng, UBC (Data Mining, Health Informatics)
- Dr. Reinhard Michael Krausz, UBC (Addiction Psychiatry)
- Dr. Alireza Kazemi, UBC (Clinical Decision Support)

Selected Invited Talks

Date	Title	Venue
Sep 2020	Keynote: ML in Psychiatry and Public Health	2nd Int'l Psychiatry Congress (Tanta, Egypt)
Dec 2020	Keynote: ML Methods and Predictive Modeling	Virtual Solutions for Substance Use Care
Mar 2023	Lightning Talk: ML Predictive Model for Overdose	3rd Annual BC Concurrent Disorders Conference
Jun 2023	Event Coordinator	1st Canadian Academy of Addiction Psychiatry Conference
Jul 2025	Attendee	ICML 2025 (Vancouver)

List of Publications

Summary:

- Overall: 11 peer-reviewed publications
- High-impact venues: WIREs Computational Statistics, Journal of Evaluation in Clinical Practice, Canadian Journal of Psychiatry
- First-author papers: 5

Refereed Journal Publications

Year: 2025

[J1] **A.M.Y. Tai**, A. Kazemi, J.J. Kim, J. Schmeckenbecher, V. Kitchin, J. Suen, R.M. Krausz, "Utilizing Machine Learning for Early Intervention and Risk Management in the Opioid Overdose Crisis," *WIREs: Computational Statistics*, 2025.

Year: 2024

[J2] **A.M.Y. Tai**, J.J. Kim, J. Schmeckenbecher, V. Kitchin, J. Wang, A. Kazemi, R.M. Krausz, "Clinical decision support systems in addiction and concurrent disorders: A systematic review and meta-analysis," *Journal of Evaluation in Clinical Practice*, 2024.

[J3] A. Kazemi, M. Boyd, F. Choi, **A.M.Y. Tai**, V.W.L. Tsang, T. To, J. Kim, K. Jang, R.M. Krausz, "Architecture and development framework for a web-based risk assessment and management platform developed on WordPress to address opioid overdose," *JMIR Formative Research*, 2024.

[J4] R.M. Krausz, J.N. Westenberg, **A.M.Y. Tai**, H. Fadakar, V. Seethapathy, et al., "A call for an evidence-based strategy against the overdose crisis," *The Canadian Journal of Psychiatry*, 2024.

Year: 2023

[J5] **A.M.Y. Tai**, M. Meyer, M. Varidel, A. Prodan, M. Vogel, F. Iorfino, R.M. Krausz, "Exploring the potential and limitations of ChatGPT for academic peer-reviewed writing: Addressing linguistic injustice and ethical concerns," *Journal of Academic Language and Learning*, 2023.

Year: 2019

[J6] **A.M.Y. Tai**, A. Jain, B.N. Gee, R.B. Gnanavel, R.S. McIntyre, "Machine learning and big data: Implications for disease modeling and therapeutic discovery in psychiatry," *Artificial Intelligence in Medicine*, 2019.

Book Chapter

[B1] **A.M.Y. Tai**, "A machine learning approach to overdose risk assessment," PhD Dissertation, University of British Columbia, 2024.

Teaching Experience

Summary:

- Teaching at UBC: Primary instructor for 10+ courses in data science and statistics
- Student reach: 550+ graduate and undergraduate students
- Recognition: MDS Teaching Assistant Award (2021/22)
- Focus: Machine learning, statistics, data visualization, databases, probability

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Courses Taught (Primary Instructor)

Course	Title	Level
DSCI 100	Statistics and Data Science	Undergraduate
DSCI 521	Data Science: Tooling	Graduate

Course	Title	Level
DSCI 513	Databases and SQL for Data Science	Graduate
DSCI 531	Data Visualization I	Graduate
DSCI 542	Communication and Argumentation	Graduate
DSCI 551	Descriptive Statistics and Probability	Graduate
STAT 302	Introduction to Probability	Undergraduate
SCIE 113/300	Science Communication	Undergraduate
DSCI 591	Capstone Project Supervision	Graduate

Teaching Assistant Experience

Period	Courses	Department
Jan 2020 - Apr 2024	DSCI 523, 524, 531, 532, 541, 522, 552, 553, 551, 571, 573	MDS, UBC
	BAIT 507, 509, 580A	Business Analytics, UBC
	CPSC 121, 322; DSCI 320	Computer Science, UBC
	NRSC 501	Medicine, UBC

Student Advising

Capstone Project Supervision (DSCI 591):

Year	Students	Project	Partner
2024	C. Xu, D. Karlin Isa, J. Lim, A. Wong	Automated Phishing Detection	UBC Cybersecurity
2024	A. Turi, D. Garg, E. Fang, T. Aldawood	Startup Acceleration Tool	Creative Destruction Lab
2024	A. Sanghera, E. Chu, P. Singh, S. Hosahali	Vessel Trajectory Analysis	NCIS

Graduate Student Mentorship:

Period	Mentee	Institution	Topic
2025 - present	Agam Sanghera (PhD)	UBC Neuroscience	Thesis supervision
Jan - Apr 2025	F. Farouj	UBC Integrated Sciences	Curriculum planning

Undergraduate Research Mentorship:

Period	Mentee	Institution	Topic
2023	J. Feng	University of Toronto	Telemedicine outcomes
2023	S. Jain	Nova Southeastern	E-Health in LMICs
2023	D. Walji, E. Li	Queen's University	Overdose comorbidities
2022	X. Kong	University of Toronto	ML in Alzheimer's

International Research Experience

Period	Institution	Project	Supervisors
Oct 2022 - Jan 2023	University of Sydney, Brain & Mind Centre Sydney, Australia	Machine Learning Synergy for Digital Mental Health	Host: Prof. Ian Hickie, Dr. Frank Iorfino Funding: Mitacs Globalink

Professional Development

Period	Program	Institution
Sep 2024 - Apr 2025	Teaching Development Program for New Faculty	UBC CTLT
Aug 2024	Instructional Skills Workshop (ISW)	UBC CTLT

Technical Skills

Category	Tools
Programming	Python, R, JavaScript, SQL
ML Frameworks	scikit-learn, TensorFlow, PyTorch, BERT/transformers
Databases	MongoDB, PostgreSQL
DevOps	Docker, AWS (basics)
Statistics	Meta-analysis (Covidence), survival analysis

References

Name	Position	Contact
Dr. Reinhard Michael Krausz	UBC Providence Leadership Chair for Addiction Research; Professor of Psychiatry	mkrausz@mail.ubc.ca, +1 (604) 649-9336
Dr. Raymond Ng	Director, UBC Data Science Institute; Professor of Computer Science	rng@cs.ubc.ca, +1 (604) 822-2394
Dr. Varada Kolhatkar	Associate Professor of Teaching, Computer Science; Co-Director, MDS	kvarada@cs.ubc.ca