David Nguyen

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Aspiring clinician-scientist focused on evidence-based medicine, clinical artificial intelligence and cardiology.

EDUCATION

Doctor of Medicine (MD) Candidate, Class of 2027 2024 – Present

Michael G. DeGroote School of Medicine, McMaster University | Hamilton, ON

Research Year: Machine-Assisted Evidence Synthesis and Translational Clinical Artificial Intelligence. **Supervisors:** Dr. Gordon Guyatt, Dr. Tyler Pitre.

Bachelor of Health Sciences (BHSc), with Distinction 2021 – 2024

Queen's University | Kingston, ON

Thesis: Functional assessment of genetic variants in tumour suppressor genes using high-throughput fluorescence microscopy analysis. **Supervisors:** Dr. Jesse Chao, Dr. Neil Renwick.

RESEARCH EXPERIENCE

Research Student September 2026 – Present

Population Health Research Institute | Hamilton, ON | Supervisor: Dr. J.D. Schwalm

- Help implement the CarDIA-AI classifier across Ontario hospitals. It is a LightGBM model trained on 37,000+ prior referrals that uses 42 clinical parameters to predict obstructive coronary artery disease and recommend CT coronary angiography or invasive angiography.
- Contribute to the CarDIA-AI randomized controlled trial (NCT06648239; target n=252 at Hamilton Health Sciences and Niagara Health), which tests whether AI-guided triage reduces invasive angiograms that find no obstructive disease.
- Support optical character recognition (OCR) and Epic EHR implementation at Hamilton Health Sciences.

Research Student, Evidence-Based Medicine and AI April 2026 – Present

Department of Health Research Methods, Evidence, and Impact, McMaster University | Hamilton, ON | Supervisors: Dr. Gordon Guyatt, Dr. Dena Zeraatkar

- Lead Medevi (2025 – present), an open-source platform for LLM-assisted screening, data extraction and critical appraisal built by an 11-member team; every output carries the model's rationale, supporting source text and a certainty score. Advised by Drs. Zeraatkar, Guyatt and Matthew Sibbald; funded by Microsoft and Cohere Labs, with a Digital Research Alliance of Canada compute allocation.
- First author of Medevi-RoB, a benchmark of 273 outcome-level Risk of Bias 2 (RoB 2) judgements from 154 randomized trials scored against Cochrane expert consensus. The best open-weight approaches (gpt-oss-120b) reached Cohen's κ 0.19–0.57 per domain, matching or exceeding published human inter-rater agreement (κ 0.04–0.45) in all five domains, at under $0.02 per paper.
- First author of an evaluation of GPT-5 models on 139 medical education studies from 5 systematic reviews: agreement with human raters on total MERSQI score reached ICC 0.755 (versus 0.79 between humans) at 29–57 seconds and $0.10–0.57 per paper, while NOS-E agreement was poor (ICC 0.345 versus 0.82).
- Contribute to guideline development for integrating AI into evidence-based medicine.

Research Student May 2025 – Present

Population Health Research Institute | Hamilton, ON | Supervisor: Dr. William F. McIntyre

- Lead machine learning projects predicting atrial fibrillation recurrence and maintenance of pulmonary vein isolation; preparing national CIHR grant applications for this work.
- Conduct systematic reviews, meta-analyses and cohort studies on cavotricuspid isthmus ablation outcomes in atrial flutter, device-related thrombus after left atrial appendage occlusion (LAAO), and LAAO outcomes.
- Conduct a subgroup analysis of ARTESIA, a PHRI-sponsored trial of apixaban versus aspirin in 4,012 patients with device-detected subclinical atrial fibrillation across 16 countries.

Summer Research Student May 2024 – August 2024

Temerty Centre for AI Research and Education in Medicine (T-CAIREM) | Toronto, ON | Supervisor: Dr. Jesse Chao

- Optimized the architecture and accuracy of software for single-cell phenotyping and perturbational analysis of high-content microscopy images.
- Applied metric learning and representation learning to improve ranking and retrieval of cellular representations from fluorescence microscopy images.

Student Researcher September 2023 – Present

Kingston Health Sciences Centre | Kingston, ON | Supervisors: Dr. Adrian Baranchuk, Dr. William McIntyre

- Co-lead the design and conduct of systematic reviews and meta-analyses on hormone replacement therapy and atrial fibrillation (first-author abstract accepted to ACC 2026).
- Collaborated with researchers in Argentina to study violence against healthcare workers in Latin America during the COVID-19 pandemic.

Summer Research Student May 2023 – August 2023

Sunnybrook Research Institute | Toronto, ON | Supervisor: Dr. Jesse Chao

- Engineered a high-throughput image analysis pipeline to classify variants of uncertain significance in hereditary cancer genes, including *CDH1*, *APC* and *PTEN*.
- Optimized the pipeline's efficiency and accuracy, contributing functional evidence for variant reclassification.

Research Assistant March 2022 – January 2023

Department of Medicine, Queen's University | Kingston, ON | Supervisor: Dr. Anthony Bai

- Co-authored a systematic review comparing preprints and published journal articles of COVID-19 randomized controlled trials (*JAMA Network Open*, 2023).
- Performed title and abstract screening, data extraction and risk of bias assessments using Covidence.

PEER-REVIEWED PUBLICATIONS

- Hasheminia A, Veitch A, Gupta K, et al. The electrocardiogram manifestations of atrial and ventricular septal defects before and after repair. *Curr Probl Cardiol*. 2026;51(10):103406. doi:10.1016/j.cpcardiol.2026.103406
- Ali ZS, **Nguyen DL**, Bhuiyan A, et al. Intravenous amiodarone in preexcited atrial fibrillation: a systematic review. *Circ Arrhythm Electrophysiol*. 2026;19(3). doi:10.1161/CIRCEP.125.014529
- Bunch K, **Nguyen D**, Kozel G, Doan TV, Lin E. Leveraging social media and AI for early community mental health support. *Cureus*. doi:10.7759/cureus.95047
- Bai AD, Jiang Y, **Nguyen DL**, et al. Comparison of preprint postings of randomized clinical trials on COVID-19 and corresponding published journal articles: a systematic review. *JAMA Netw Open*. 2023;6(1):e2253301. doi:10.1001/jamanetworkopen.2022.53301

ORAL PRESENTATIONS

- **Nguyen DL**, Ganea A, Ton MH, Sibbald MG. Large language model-assisted critical appraisal for medical education research. International Congress on Academic Medicine (ICAM); April 2026; Ottawa, ON.
- Sood G†, **Nguyen DL**†, Pace K, et al. Impact of spaced repetition digital flashcards on academic performance in health sciences education: a systematic review. ICAM; April 2026; Ottawa, ON. †Co-first authors.
- Sheth U, **Nguyen DL**, Al Dabagh Y, Eivin DK, Siroosi R. AI in medical education: a workshop by students, for students. ICAM; April 2026; Ottawa, ON.
- **Nguyen DL**, Ganea A, Kwan D, et al. Medevi-RoB: a cross-domain benchmark of large language models for automated Risk of Bias 2 (RoB 2) assessment in randomized trials. T-CAIREM Conference; 2025; Toronto, ON.
- Bunch K, **Nguyen D**, Kozel G, Lin E, Doan TV. Robust text classification and LLM integration for personalized mental health support. *BMC Proc*. 2025;19(Suppl 13):O5. doi:10.1186/s12919-025-00328-2

POSTER PRESENTATIONS AND PUBLISHED ABSTRACTS

- **Nguyen DL**, Ali ZS, Zaidi MA, et al. Hormone replacement therapy in post-menopausal women and the risk of atrial fibrillation onset: a systematic review and meta-analysis. Abstract accepted to the American College of Cardiology Scientific Session (ACC); 2026.
- **Nguyen DL**, Ganea A, Ton MH, Sibbald MG. Large language model-assisted critical appraisal for medical education research. Poster, T-CAIREM Conference; 2025; Toronto, ON.

- **Nguyen DL**, Ganea A, Ton MH. Medevi: democratizing AI-assisted data extraction for medical evidence synthesis. McMaster Medical Student Research Day; 2025. Best Poster Presentation.
- Nguyen D, **Nguyen DL**, Zhang R, Chao JT. Improving cardiotoxicity prediction for oncology drugs via domain-specific adaptation. *Clin Cancer Res*. 2025;31(13_Suppl):A021. doi:10.1158/1557-3265.AIMACHINE-A021
- **Nguyen DL**, Chao JT. Paracell: a high-throughput, deep learning-based pipeline for single-cell phenotypic profiling. *Cancer Res*. 2024;84(6_Suppl):3536. doi:10.1158/1538-7445.AM2024-3536
- Singh AP, Wen J, **Nguyen D**, Khan V, Dhami K, Meier-Ross K, et al. Characterizing variants of uncertain significance in the tumor suppressor gene known as phosphatase and tensin homolog (PTEN). *Cancer Res*. 2024;84(6_Suppl):6233. doi:10.1158/1538-7445.AM2024-6233
- Wen J, Singh A, **Nguyen D**, Meier-Ross K, Martin B, Khan V, et al. Characterizing the functional significance of "variant of uncertain significance" of the tumour suppressor *CDH1*. *Cancer Res*. 2024;84(6_Suppl):3012. doi:10.1158/1538-7445.AM2024-3012

GRANTS, FUNDING AND AWARDS

- **Cohere Catalyst Grant** (2025): $1,000 awarded for independent research on large language model applications in medical evidence synthesis.
- **3rd Place, MD+ National Datathon** (2025): Developed an integrated machine learning system to predict patient readmissions and optimize post-discharge care protocols for heart failure management.
- **Best Poster Presentation, McMaster Medical Student Research Day** (2025): Awarded for Medevi, an AI-assisted data extraction platform for medical evidence synthesis.
- **3rd Place, MD+ National Datathon** (2024): Engineered a text-classification and LLM-integrated pipeline to detect mental health needs and provide community support through social media platforms.
- **Temerty Centre for AI Research and Education in Medicine (T-CAIREM) Award** (2024): Selected as one of 30 recipients nationally for a $16,000 research award, co-funded by T-CAIREM and the host laboratory, to pursue AI in medicine research.
- **Sunnybrook Research Institute Award** (2023): Merit-based $14,000 matched funding award (Sunnybrook Research Institute and principal investigator), granted to a selected cohort of ~35 students.
- **Western University National Scholarship, Faculty of Science** (2021): One of 15 awarded annually for national-level leadership and academics ($30,000).
- **McGill University Major Entrance Scholarship** (2021): Awarded for academic and community achievement ($20,000).
- **International Baccalaureate Diploma** (2021): Perfect score of 45/45 (top 0.1% globally).

LEADERSHIP (SELECTED)

President, Physician Innovator August 2026 – Present

National, CMA-affiliated

- Lead a national, CMA-affiliated organization connecting physician innovators and entrepreneurs-in-training across Canadian medical schools, setting strategic direction and overseeing national programming, including Grand Rounds webinars and the Specialty Series.

Steering Committee Member, Physician Innovator March 2025 – August 2026

National, CMA-affiliated

- Served as a Steering Committee Member, overseeing strategic vision in 2025-2026. Additionally managed the organization's budget and financial operations and supported resourcing of national programming.

Vice-President Web Developer, Stethopedia October 2024 – Present

Hamilton, ON

- Maintain stethopedia.ca, an open-access e-learning platform of OSCE-style physical examination and radiology videos built by McMaster medical students and profiled in the *Canadian Medical Education Journal*.
- Work with content creators, faculty advisors and video production teams to plan, build and publish new physical exam and imaging modules.

Co-Chair, McMaster Artificial Intelligence in Medicine Interest Group October 2024 – Present

Hamilton, ON

- Lead programming that introduces medical students to AI and machine learning in clinical practice and research, recruiting speakers and facilitating workshops.

Co-Chair, McMaster Oncology Interest Group October 2024 – Present

Hamilton, ON

- Organize speaker events and mentorship opportunities connecting medical students with oncology clinicians and researchers, and coordinate programming and budget.

Board Member, WebStraw August 2024 – Present

National

- Serve on the board of a Canadian non-profit providing free, open-access educational resources to post-secondary students, contributing to strategy and governance.

Executive Director, WebStraw Queen's January 2022 – August 2024

Kingston, ON

- Founded and led the Queen's chapter and helped grow WebStraw from a single-campus initiative into a multi-branch national non-profit, including its expansion to Western University.

Director-General, Queen's National Model UN Conference October 2022 – March 2023

Kingston, ON

- Directed the planning and execution of a multi-day conference, overseeing a team of chairs and staff and coordinating delegate logistics for participating institutions.

Founder, bridgeu.ca June 2022 – Present

Kingston, ON

- Built a community-run platform and curated databases connecting students in Kingston and London, ON to research, volunteering and youth-organization opportunities, supported by partners including Queen's University, Western University and the Dunin-Deshpande Queen's Innovation Centre.

MENTORSHIP AND TEACHING

- **Preclerkship Guide Contributor, McMaster Medical Student Council** (May 2025 – Present): contribute content to the student-authored guide for incoming medical students.
- **Orientation Leader, McMaster Medical Student Council** (May 2025 – Present): mentor incoming medical students through the transition into medical school.
- **Admissions Ambassador, McMaster UGME** (October 2024 – Present): advise prospective applicants on the McMaster MD program at recruitment events.

COMMUNITY ENGAGEMENT

- **Member, MacHealthDNA** (October 2024 – Present): support student-led primary care for refugee and newcomer populations in Hamilton.
- **Team Member, McMaster Medicine Dragon Boat** (October 2024 – Present).

PROFESSIONAL MEMBERSHIPS

- American College of Cardiology (2025 – Present)
- Canadian Society of Internal Medicine (2025 – Present)
- Canadian Cardiovascular Society (2024 – Present)
- Canadian Medical Association (2024 – Present)
- Ontario Medical Association (2024 – Present)
- Canadian Federation of Medical Students (2024 – Present)
- American Association for Cancer Research (2023 – Present)

TECHNICAL SKILLS

- **Research foci:** Cardiovascular medicine, machine learning, systematic reviews, meta-analysis, risk of bias assessment, clinical trials, observational studies, medical education
- **Languages:** Python, R, Java, SQL
- **ML/Data:** PyTorch, scikit-learn, Pandas, NumPy, OpenCV, scikit-image
- **Tools:** Git, Unix, Bash, Docker, MongoDB, LaTeX