

Thuy-Ngoc (Ngoc) Nguyen

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RESEARCH INTERESTS

Human-AI interaction and collaboration, human computation and user modeling, recommender systems, artificial intelligence, machine learning, and cognitive and behavioral science.

EDUCATION

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|-------------|---|
| 2015 – 2019 | Free University of Bozen-Bolzano, Italy
Ph.D. in Computer Science (graduated with excellence) |
| 2011 – 2013 | Vietnam National University – HoChiMinh City University of Science, Vietnam
M.S. in Information Systems (graduated with excellence) |
| 2006 – 2010 | HoChiMinh City University of Education, Vietnam
B.S. in Computer Science Education (graduated with distinction) |

PROFESSIONAL APPOINTMENTS

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|-------------------|--|
| 08/2023 – present | Assistant Professor
Department of Computer Science, University of Dayton, OH, USA |
| 01/2023 – 07/2023 | Visiting Faculty Lecturer
Miner School of Computer and Information Sciences, UMass Lowell, MA, USA |
| 10/2019 – 12/2022 | Postdoctoral Researcher
Dynamic Decision-Making Lab, Carnegie Mellon University, PA, USA |
| 2018 – 2019 | Research Assistant
Faculty of Computer Science, Free University of Bozen-Bolzano, Italy |
| 02-03/ 2018 | Visiting Ph.D. student
Insight Centre for Data Analytics, University College Cork, Ireland |
| 2010-2015 | Lecturer
Faculty of Information Technology, HCM City University of Education, Vietnam |

GRANTS, AWARDS, AND HONORS

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| 2025 | NSF CISE IIS Research Initiation Initiative (CRII) Award (Sole PI). “CRII: HCC: AI-Powered Educational Game Platform for Collaborative Decision-Making with Adaptive Feedback Using Cognitive Models and LLMs”. Award amount: \$174,592. 07/2025 – 06/2027. |
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- 2025 **NSF Small Business Technology Transfer (STTR) Phase I Award (Co-PI).** “STTR Phase I: Enhancing Career Decision-making for Individuals with ASD Through Adaptive Vocational Assessment Using Reinforcement Learning”. Award amount: \$304,951. 04/2025 – 03/2026.
- 2024, 2025 **Research Council Seed Grant (competitive internal research grant)**
University of Dayton (Sole PI). Amount award: \$13,000, Summer 2024, 2025
- 2023 **UD/UDRI Research Fellowship Program**
University of Dayton (Sole PI). Amount award: \$17,800
- 2020 **Best PhD Student Award Nomination**
Faculty of Computer Science, University of Bozen-Bolzano, Italy
- 2016, 2017 **Student Travel Award, ACM SIGWEB UMAP Conference**
- 2013 **NAFOSTED Fellowship for Young Researchers**
Vietnam National Foundation for Science and Technology Development (VN NAFOSTED)
- 2010 **Best Undergraduate Research Award in STEM**
HoChiMinh City University of Education, Vietnam

PUBLICATIONS (in reverse chronological order)

JOURNAL PUBLICATIONS

- [1] McDonald, C., **Nguyen, T. N.**, Botelho, C., Dishop, C., Woolley, A. W., & Gonzalez, C (2025). Exploring the effects of collective intelligence awareness in real-time team decision making. *Collective Intelligence*. (accepted)
- [2] Phan, D. N., Hytla, P., Rice, A., & **Nguyen, T. N.** (2025). Federated learning with randomized alternating direction method of multipliers and application in training neural networks. *Neural Networks*, 107501.
- [3] **Nguyen, T. N.**, Phan, D. N., & Gonzalez, C. (2023). Learning in Cooperative Multiagent Systems Using Cognitive and Machine Models. *ACM Transactions on Autonomous & Adaptive Systems*, 1-22.
- [4] **Nguyen, T. N.** & Gonzalez, C. (2023). Minimap: An interactive dynamic decision-making game for search and rescue missions. *Behavior Research Methods*. <https://doi.org/10.3758/s13428-023-02149-7>
- [5] Gupta, P., **Nguyen, T. N.**, Gonzalez, C., & Woolley, A. W. (2023). Fostering Collective Intelligence in Human–AI Collaboration: Laying the Groundwork for COHUMAIN. *Topics in Cognitive Science*.
- [6] **Nguyen, T. N.**, Phan, D. N., & Gonzalez, C. (2022). SpeedyIBL: A comprehensive, precise, and fast implementation of instance-based learning theory. *Behavior Research Methods*, 1-24.
- [7] Zhao, M., Eadeh, F., **Nguyen, T. N.**, Gupta, P., Gonzalez, C., Admoni, H., and Woolley, A. W. (2022). Teaching Agents to Understand Teamwork: Evaluating and Predicting Collective Intelligence as a Latent Variable via Hidden Markov Model. *Computers in Human Behavior*, 139, 107524.
- [8] **Nguyen, T. N.**, & Gonzalez, C. (2021). Theory of Mind from Observation in Cognitive Models and Humans. *Topics in Cognitive Science*.
- [9] Phan, D. N., & **Nguyen, T. N.** (2021). An accelerated IRNN-Iteratively Reweighted Nuclear Norm algorithm for nonconvex nonsmooth low-rank minimization problems. *Journal of Computational and Applied Mathematics*, 396, 113602.
- [10] **Nguyen, T. N.**, Ricci, F., Delic, A., & Bridge, D. (2019). Conflict resolution in group decision making: insights from a simulation study. *User Modeling and User-Adapted Interaction*, 29(5), 895-941.

- [11] **Nguyen, T. N.**, & Ricci, F. (2018). A chat-based group recommender system for tourism. *Information Technology & Tourism*, 18(1-4), 5-28.
- [12] Delic, A., Neidhardt, J., **Nguyen, T. N.**, & Ricci, F. (2018). An observational user study for group recommender systems in the tourism domain. *Information Technology & Tourism*, 19(1-4), 87-116.

PEER-REVIEWED CONFERENCE PUBLICATIONS

- [13] Tran-Le, B.-T., Thomas, P., Stiffler, N. M., and **Nguyen, T. N.** (2026). How Does LLM-powered Coding Assistance Shape Incidental Learning? Exploring Cognitive Forcing Strategies in Programming Education. *Proceedings of the AAAI Conference on Artificial Intelligence, Educational Advances in Artificial Intelligence (EAAI) Symposium: AI for Education Track* (accepted).
- [14] Phan, D. N., Nguyen, Q. A., & **Nguyen, T. N.** (2025). Federated Boolean Matrix Factorization Using Integer Programming. *In Proceedings of the 24th IEEE International Conference on Machine Learning and Applications (ICMLA)* (accepted).
- [15] **Nguyen, T. N.**, Woolley, A. W., & Gonzalez, C. (2025). Measuring Implicit Spatial Coordination in Teams: Effects on Collective Intelligence and Performance. *In Proceedings of the ACM Collective Intelligence Conference* (pp. 273-285).
- [16] **Nguyen, T. N.**, Jamale, K., & Gonzalez, C. (2024). Predicting and Understanding Human Action Decisions: Insights from Large Language Models and Cognitive Instance-Based Learning. *Proceedings of the AAAI Conference on Human Computation and Crowdsourcing* (Vol. 12, pp. 126-136).
- [17] **Nguyen, T. N.**, McDonald, C., & Gonzalez, C. (2024). Credit Assignment: Challenges and Opportunities in Developing Human-like Learning Agents. *Proceedings of the AAAI 2024 Spring Symposium Series* Vol. 3(1), 54-57.
- [18] McDonald, C., Malloy, T., **Nguyen, T. N.**, & Gonzalez, C. (2023). Exploring the path from instructions to rewards with large language models in instance-based learning. *In Proceedings of the AAAI Symposium Series* (Vol. 2, No. 1, pp. 334-339).
- [19] Eadeh, F., Zhao, M., **Nguyen, T. N.**, Gupta, P., Gonzalez, C., Admoni, H., & Woolley, A. W. (2022). Good for me, but bad for we: How anger can motivate individual performance but inhibit teamwork. *ACM Collective Intelligence Conference*, October 20-21. Virtual meeting.
- [20] Gulati, A., **Nguyen, T. N.**, & Gonzalez, C. (2021). Task complexity and performance in individuals and groups without communication. *AAAI Fall Symposium on Theory of Mind for Teams*.
- [21] McDonald, C., **Nguyen, T. N.**, & Gonzalez, C. (2021). Multi-Agent Specialization and Coordination in a Gridworld Task. *AAAI Fall Symposium on Theory of Mind for Teams*.
- [22] **Nguyen, T. N.**, Phan, D. N., & Gonzalez, C. (2021) A Cognitive Hysteretic-IBL Model for Coordinated Multi-Agent Transportation Problems. *ACM Collective Intelligence Conference*, June 29-June30. Virtual meeting.
- [23] Eadeh, F., Zhao, M., **Nguyen, T. N.**, Gupta, P., Gonzalez, C., Admoni, H., and Woolley, A. W. (2021). Anger: Helpful or Harmful for Team Performance? *ACM Collective Intelligence Conference*, June 29-June30. Virtual meeting.
- [24] **Nguyen, T. N.**, & Gonzalez, C. (2020). Cognitive Machine Theory of Mind. *In Proceedings of the 42nd Annual Meeting of the Cognitive Science Society (CogSci 2020). 42nd Annual Meeting of the Cognitive Science Society (CogSci 2020)*, July 29-August 1, Virtual meeting. (pp. 2560-2566).
- [25] **Nguyen, T. N.**, & Gonzalez, C. (2020). Effects of Decision Complexity in Goal seeking Gridworlds: A Comparison of Instance Based Learning and Reinforcement Learning Agents. *18th Annual Meeting of the International Conference on Cognitive Modelling*. July 20-July 31, Virtual meeting.

- [26] **Nguyen, T. N., & Ricci, F.** (2018). Situation-dependent combination of long-term and session-based preferences in group recommendations: an experimental analysis. In *Proceedings of the 33rd Annual ACM Symposium on Applied Computing* (pp. 1366-1373).
- [27] **Nguyen, T. N., & Ricci, F.** (2017). Dynamic elicitation of user preferences in a chat-based group recommender system. In *Proceedings of the 32nd Symposium on Applied Computing* (pp. 1685-1692).
- [28] **Nguyen, T. N., & Ricci, F.** (2017). Combining long-term and discussion-generated preferences in group recommendations. In *Proceedings of the 25th Conference on User Modeling, Adaptation and Personalization (UMAP 2017)* (pp. 377-378).
- [29] **Nguyen, T. N., & Ricci, F.** (2017). A chat-based group recommender system for tourism. In *Information and Communication Technologies in Tourism 2017* (pp. 17-30). Springer.
- [30] **Nguyen, T. N.** (2017). Conversational group recommender systems. In *Proceedings of the 25th Conference on User Modeling, Adaptation and Personalization (UMAP 2017)* (pp. 331-334).
- [31] Delic, A., Neidhardt, J., **Nguyen, T. N., Ricci, F., Rook, L., Werthner, H., & Zanker, M.** (2016). Observing group decision making processes. In *Proceedings of the 10th ACM conference on recommender systems* (pp. 147-150).

WORKSHOP PAPERS, POSTERS, AND DEMONSTRATIONS

- [32] Delic, A., Emamgholizadeh, H., **Nguyen, T. N., & Ricci, F.** (2024). CHARM: a Group Decision Making Support Chatbot. In *Companion Proceedings of the 29th International Conference on Intelligent User Interfaces* (pp. 7-10).
- [33] **Nguyen, T. N., & Ricci, F.** (2017). Preference elicitation for group recommender systems. Italian Information Retrieval Workshop. June 05-07.
- [34] Delic, A., Neidhardt, J., **Nguyen, T. N., & Ricci, F.** (2016). Research Methods for Group Recommender System. *Workshop on Recommenders in Tourism*.
- [35] **Nguyen, T. N., & Ricci, F.** (2016). Supporting group decision making with recommendations and explanations. *ACM Conference on User Modeling, Adaptation and Personalization* (in conjunction with UMAP 2016).

BOOK CHAPTERS

- [36] **Nguyen, T. N., McDonald, C., & Gonzalez, C.** (2025). Credit assignment: challenges and opportunities in developing human-like learning agents. *Bi-directionality in Human-AI Collaborative Systems*, 407-449.
- [37] Delic, A., **Nguyen, T. N., & Tkalcic, M.** (2020). Group Decision-Making and Designing Group Recommender Systems. *Handbook of e-Tourism*, 1-23.

TEACHING EXPERIENCE

Instructor, University of Dayton, OH, USA

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| ▪ CPS 499/592 Human-AI Interaction | Spring 2025 |
| ▪ CPS 480/580 Artificial Intelligence | Fall 2023, 2024, 2025 |
| ▪ CPS 350 Data Structures and Algorithms | Spring 2024 |
| ▪ CPS 349 Data Science | Spring 2024, Fall 2024 |

Instructor, University of Massachusetts Lowell, MA, USA

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| ▪ Computing I | Spring 2023 |
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Teaching Assistant, Carnegie Mellon University, PA, USA

- Decision Models and Games Spring 2022
- Dynamic Decisions Spring 2020, 2021

Volunteer Tutor, Free University of Bozen-Bolzano, Italy

- Web Development with Meteor JS Summer 2016

Lecturer, HCM City University of Education, Vietnam

- Introduction to Databases 2011-2015
- Database Management Systems 2011-2015
- System Analysis and Design 2011-2015
- Business Intelligence Systems 2014

RESEARCH ADVISING

- Kasturi Jamale - Graduate Research Assistant, University of Dayton, Summer 2024. (*Paper accepted at AAAI HCOMP 2024*).
- Cameron Reynes - Undergraduate Research Assistant, 6/2025 – present.
- Nicholas Jerome - Undergraduate Research Assistant, 11/2025 – present.
- Quang Thinh Tran - Undergraduate Research Assistant, University of Dayton, Summer 2025.
- Quynh Anh Nguyen - Honors Student, Berry Summer Thesis Institute, University of Dayton, Summer 2025. (*Paper accepted at IEEE ICMLA 2025*).
- Ba-Thinh Tran-Le - Graduate Student (Project course in Human-AI Interaction, Spring 2025). (*Paper accepted at AAAI/EAAI 2026*).
- Patrick Thomas (Project Course in Human-AI Interaction, Spring 2025). (*Paper accepted at AAAI/EAAI 2026*).

ACADEMIC ACTIVITIES

WORKSHOP CO-ORGANIZER

- AAAI 2021 Fall Symposium on Computational Theory of Mind for Human-Machine Teams
- ENTER 2017 e-Tourism Workshop on Decision Making in Tourism, Rome, Italy

EDITORIAL BOARD MEMBER

- Springer Journal of Information Technology & Tourism (2025 – present)

PROGRAM COMMITTEE

- ACM Conference on Recommender Systems (RecSys from 2018 to present)
- ACM Conference on User Modelling, Adaptation and Personalization (2018-2022)
- AAAI Symposium on Educational Advances in Artificial Intelligence (EAAI)-26 (AI for Education)

CONFERENCE REVIEWER

- ACM The Web Conference (WWW'2022)
- The 42nd Annual Meeting of the Cognitive Science Society (CogSci 2020, 2022)
- The 13th International Conference on Human-Agent Interaction (HAI 2025)

JOURNAL REVIEWER

- ACM Transactions on Intelligent Systems and Technology (TIST)

- ACM Transactions on Information Systems (TOIS)
- Journal of Intelligent Information Systems
- User Modeling and User-Adapted Interaction
- Personal and Ubiquitous Computing
- Frontiers in Computer Science
- Frontiers in Robotics
- Topics in Cognitive Science
- Nature Scientific Report
- Nature Humanities and Social Sciences Communications

FEDERAL GRANT REVIEW

- NSF Panel Reviewer (2023, 2024)

INVITED TALKS, TUTORIALS, AND ACADEMIC SEMINARS

- Carnegie Mellon University- NSF AI-SDM Human-AI Complementarity Workshop (Sep. 2025)
Modeling Human Learning from Experience with Instance-Based Learning Theory
- University of Dayton - Center for Cybersecurity and Data Intelligence (CCDI) (Nov. 2024)
On the Utility of Cognitive-Inspired Approaches for Human-AI Interaction
- Carnegie Mellon University- Dynamic Decision-Making Lab (Online, May 2019)
Supporting Group Discussions with Recommendation Techniques
- Vienna University of Technology (TU Wien)- e-Commerce Group, Faculty of Informatics (Dec. 2018)
Conflict Resolution in Group Decision Making: Insights from a Simulation Study

OPEN-SOURCED LIBRARIES & DEPLOYED SOFTWARE

- Minimap: A dynamic decision-making interactive tool for search and rescue missions
Main developer for single- and multi-player versions.
Demo: <http://janus.hss.cmu.edu:5701/demo/>
- Igrid: An interactive goal-seeking task in a “gridworld” environment.
Main developer. Deployed at the Dynamic Decision Making Lab, Carnegie Mellon University.
Demo: <http://janus.hss.cmu.edu:3001/> and <http://janus.hss.cmu.edu:3006/>
- SpeedyIBL: A Python library for creating single or multi-agent cognitive Instance-Based Learning (IBL) agents.
Contributor. Link: <https://github.com/ddm-lab/speedyibl>