Chris Marriott

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Teaching Professor
School of Engineering and Technology
University of Washington Tacoma
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Tacoma, WA 98402
United States

Google Scholar
ResearchGate
YouTube
GitHub
LinkedIn
RateMyProfessor

Research Interests

Agent-based Modeling: biological and social systems, reproductive division of labor, task specialization, domestication
Artificial Life: open-ended evolution, evolutionary and cultural systems, evolution of social behavior, evolution of communication, evolution of language, evolution of cooperation, evolutionary game theory
Cognitive Science: social learning, cultural evolution, collective intelligence, superhuman intelligence
Complex Systems: emergence, multi-level emergence, simulation of complex systems
Engineering: evolutionary robotics, neuroevolution, deep reinforcement learning
Evolution: origins of life, major transitions in evolution, multi-level selection, non-biological evolution
Genetics: pleiotropy, linkage, epigenetics
Philosophy of Mind: consciousness, functionalism, artificial consciousness, artificial epistemology

Education

PhD in *Computer Science and Philosophy* from the Faculty of Graduate Studies at the University of Calgary, Canada (2004-2009), on "Folk Psychology, Cognitive Ethology, and Artificial Agents".

MSc in *Computer Science* from the Faculty of Graduate Studies at the University of Calgary, Canada (2001-2003), on "Non-Determinism and Quantum Information".

BSc in *Computer Science* from the Faculty of Science at the University of Calgary, Canada (1996-2001).

BA in *Philosophy* from the Faculty of Arts at the University of Calgary, Canada (1996-2001).

Academic Appointments

Assistant (2013-), Associate (2018-), Full Teaching Professor (2023-) in the School of Engineering and Technology at the University of Washington Tacoma.

Part-time Instructor (2004-2012) in the Department of Computer Science in the Faculty of Science at the University of Calgary.

Post-Doctoral Researcher (2011) in the Computer Science Department at the Instituto de Investigaciones en Matemáticas Aplicadas y en Sistemas in the Universidad Nacional Autónoma de México.

Part-time Instructor (2009-2010) in the David R. Cheriton School of Computer Science in the Faculty of Mathematics at the University of Waterloo.

Peer-Reviewed Publications

Journal Publications

Marriott, C., Bae, P., and Chebib, J. (2022). Deterministic response threshold models of reproductive division of labor are more robust than probabilistic models in artificial ants. *Artificial Life*, 28(2):264–286.

Marriott, C., Borg, J. M., Andras, P., and Smaldino, P. E. (2018). Social learning and cultural evolution in artificial life. *Artificial Life*, 24(1):5–9.

Marriott, C., Parker, J., and Denzinger, J. (2010). Imitation as a mechanism of cultural transmission. *Artificial Life*, 16(1):21–37.

Marriott, C. and Watrous, J. (2005). Quantum arthur–merlin games. *Computational Complexity*, 14(2):122–152.

Conference Publications

Marriott, C., Abraham, M., and Dillon, H. (2023). Labor-based grading in computer science - a student centered practice. In *ASEE 2023: American Society for Engineering Education Annual Conference*.

Marriott, C. and Chebib, J. (2023). Domestication syndrome via indirect selection in simulated cereal grains. In *ALIFE 2023: Ghost in the Machine: Proceedings of the 2023 Artificial Life Conference*, pages 219–227. MIT Press.

Bae, P. and **Marriott, C.** (2019). Reproductive division of labor in a colony of artificial ants. In *ALIFE 2019: The 2019 Conference on Artificial Life*, pages 308–315. MIT Press.

DeMartini, S. and **Marriott, C.** (2018). Multilevel selection can lead to cooperation in a public goods game. In *ALIFE 2018: The 2018 Conference on Artificial Life*, pages 485–492. MIT Press.

Robertson, M. and **Marriott, C.** (2017). Role re-assignment and resource management in human organizations. In *Proceedings of the 14th European Conference on Artificial Life 2017*, pages 569–576. MIT Press.

Marriott, C. and Chebib, J. (2016). Modeling the evolution of gene-culture divergence. In *Proceedings of the Artificial Life Conference 16*, pages 500–507. MIT Press.

Marriott, C. and Chebib, J. (2016). Finding a mate with eusocial skills. In *Proceedings of the Artificial Life Conference 16*, pages 298–305. MIT Press.

Marriott, C. and Chebib, J. (2016). Divergent cumulative cultural evolution. In *Proceedings of the Artificial Life Conference 16*, pages 508–515. MIT Press.

Marriott, C. and Chebib, J. (2015). Finding a mate with no social skills. In *GECCO '15: Proceedings of the 2015 Annual Conference on Genetic and Evolutionary Computation*, pages 185–192. ACM.

Marriott, C. and Chebib, J. (2015). Emergence-focused design in complex system simulation. In *Proceedings of the European Conference on Artificial Life 2015, ECAL 2015*, pages 234–241. MIT Press.

Marriott, C. and Chebib, J. (2014). The effect of social learning on individual learning and evolution. In *Artificial Life 14: Proceedings of the Fourteenth International Conference on the Synthesis and Simulation of Living Systems*, pages 736–741. MIT Press.

Marriott, C. and Gershenson, C. (2011). Polyethism in a colony of artificial ants. In *Advances in Artificial Life, ECAL 2011: Proceedings of the Eleventh European Conference on the Synthesis and Simulation of Living Systems*, pages 498–505. MIT Press.

Marriott, C. and Watrous, J. (2004). Quantum arthur-merlin games. In *CCC '04: Proceedings of the 2004 Conference on Computational Complexity*, pages 275–285. IEEE.

Workshop Publications

Marriott, C. and Chebib, J. (2016). The Dual Inheritance Model. In *Workshop on Social Learning and Cultural Evolution*.

Marriott, C. (2017). Social Learning in Non-Human Animals. In *Workshop on Social Learning and Cultural Evolution*.

Courses Taught

Online YouTube Courses

[Discrete Math for Computer Science](#)	33 videos	Since 2020
[Data Structures](#)	37 videos	Since 2020
[Design and Analysis of Algorithms](#)	53 videos	Since 2020
[Artificial Intelligence](#)	31 videos	Since 2023
[Game and Simulation Design](#)	42 videos	Since 2021

University of Washington Tacoma

Data Structures	Winter 2024	4.7/5
Game and Simulation Design	Winter 2024	4.6/5
Discrete Math for Computer Science	Autumn 2023	5.0/5
Design and Analysis of Algorithms	Summer 2023	4.9/5
Artificial Intelligence	Summer 2023	4.7/5
Data Structures	Spring 2023	4.7/5
Data Structures	Spring 2023	4.9/5
Game and Simulation Design	Winter 2023	4.8/5
Design and Analysis of Algorithms	Winter 2023	5.0/5
Discrete Math for Computer Science	Autumn 2022	4.8/5
Discrete Math for Computer Science	Autumn 2022	4.4/5
Data Structures	Summer 2022	N/A
Design and Analysis of Algorithms	Summer 2022	4.8/5
Data Structures	Spring 2022	4.6/5
Data Structures	Spring 2022	4.9/5
Design and Analysis of Algorithms	Winter 2022	5.0/5
Game and Simulation Design	Winter 2022	4.9/5
Data Structures	Summer 2021	4.8/5
Design and Analysis of Algorithms	Summer 2021	4.8/5
Data Structures	Spring 2021	4.6/5
Design and Analysis of Algorithms	Spring 2021	4.9/5
Game and Simulation Design	Winter 2021	5.1/5
Design and Analysis of Algorithms	Autumn 2020	5.0/5
Discrete Math for Computer Science	Autumn 2020	4.6/5
Design and Analysis of Algorithms	Summer 2020	4.9/5
Design and Analysis of Algorithms	Spring 2020	4.6/5
Data Structures	Spring 2020	4.8/5
Game and Simulation Design	Winter 2020	4.5/5
Artificial Intelligence	Winter 2020	4.3/5
Discrete Math for Computer Science	Autumn 2019	4.8/5
Data Structures	Autumn 2019	4.3/5
Design and Analysis of Algorithms	Summer 2019	4.9/5
Data Structures	Spring 2019	4.6/5
Design and Analysis of Algorithms	Spring 2019	4.9/5
Game and Simulation Design	Winter 2019	4.5/5
Design and Analysis of Algorithms	Winter 2019	4.8/5
Artificial Intelligence	Autumn 2018	4.6/5
Design and Analysis of Algorithms	Autumn 2018	4.6/5
Data Structures	Spring 2018	4.8/5
Design and Analysis of Algorithms	Spring 2018	5.1/5
Game and Simulation Design	Winter 2018	5.0/5
Design and Analysis of Algorithms	Winter 2018	4.7/5
Introduction to Automata Theory	Autumn 2017	4.7/5
Design and Analysis of Algorithms	Autumn 2017	4.7/5
Introduction to Automata Theory	Spring 2017	5.3/5
Design and Analysis of Algorithms	Spring 2017	4.5/5
Game and Simulation Design	Winter 2017	4.6/5
Design and Analysis of Algorithms	Winter 2017	5.1/5
Design and Analysis of Algorithms	Autumn 2016	4.8/5

Design and Analysis of Algorithms	Autumn 2016	5.0/5
Artificial Intelligence	Autumn 2016	5.1/5
Data Structures	Spring 2016	5.0/5
Data Structures	Spring 2016	4.9/5
Game and Simulation Design	Spring 2016	4.4/5
Data Structures	Winter 2016	5.0/5
Game and Simulation Design	Winter 2016	4.8/5
Data Structures	Autumn 2015	4.8/5
Design and Analysis of Algorithms	Autumn 2015	5.1/5
Artificial Intelligence	Autumn 2015	4.9/5
Data Structures	Spring 2015	5.0/5
Data Structures	Spring 2015	4.6/5
Design and Analysis of Algorithms	Spring 2015	5.0/5
Data Structures	Winter 2015	4.5/5
Game and Simulation Design	Winter 2015	4.6/5
Discrete Math for Computer Science II	Autumn 2014	4.6/5
Data Structures	Autumn 2014	4.7/5
Discrete Math for Computer Science II	Spring 2014	4.9/5
Game and Simulation Design	Spring 2014	4.0/5
Game and Simulation Design	Spring 2014	4.1/5
Discrete Math for Computer Science II	Autumn 2013	3.9/5
Data Structures	Autumn 2013	4.3/5

University of Waterloo

Object Oriented Software Design	Autumn 2010	3.92/5
Data Structures and Data Management	Spring/Summer 2010	4.07/5
Elementary Algorithm Design and Abstraction	Spring/Summer 2010	4.22/5
Elementary Algorithm Design and Abstraction	Winter 2010	4.31/5
Elementary Algorithm Design and Abstraction	Winter 2010	4.35/5
Introduction to Automata Theory	Autumn 2009	4.61/5

University of Calgary

Design and Analysis of Algorithms	Autumn 2012	6.06/7
Problem Solving using Application Software	Autumn 2012	5.31/7
Problem Solving using Application Software	Autumn 2012	5.31/7
Problem Solving using Application Software	Winter 2012	5.74/7
Problem Solving using Application Software	Winter 2012	5.74/7
Information Structures III	Autumn 2011	6.00/7
Design and Analysis of Algorithms	Summer 2008	N/A
Design and Analysis of Algorithms	Summer 2007	N/A
Introduction to Complexity Theory	Autumn 2006	6.00/7
Design and Analysis of Algorithms	Summer 2006	6.20/7
Introduction to Automata Theory	Spring 2006	N/A
Design and Analysis of Algorithms	Autumn 2004	6.19/7

Student Research Advisor

PhD Committee

Jobran Chebib	Pleiotropy, linkage, and the evolution of genetic architecture	2014-2016

Masters Committee

Joey Tran	Deep Q-Learning in Minecraft	2017-2018
Kevin Anderson	An Evaluation of Complex Adaptive "Evolvable" System Simulation	2015-2016

Undergraduate Honors Thesis

Toan Nguyen	Evolutionary Robotics with Predators and Prey	2022-2023
Brandon Lynch	Generating MTG cards with recurrent neural networks	2021-2022
Gobindropp Mann	Predator and Prey in a Cellular Automata	2019-2020

Undergraduate Research

Matt Bauchspies	Co-Evolution in Predators and Prey in Evolutionary Robotics	2023-2024
Young Kim	Co-Evolution in Predators and Prey in Evolutionary Robotics	2023-2024
Toan Nguyen	Evolutionary Robotics with Predators and Prey	2022-2023
Gabe Bryan	Evolutionary Robotics with Predators and Prey	2022-2023
Zach Moriarty	Simulating Emotional Contagion use Neural Networks	2022-2023
Brandon Lynch	Generating MTG cards with recurrent neural networks	2021-2022
Parker Rosengreen	Evolutionary Robotics and Foraging	2021-2022
Artem Potafiy	Evolutionary Robotics and Foraging	2021-2022
Kumiko Dunn	Social and genetic evolution in cellular automata	2021-2022
Raz Consta	Social and genetic evolution in cellular automata	2021-2022
KV Le	Social and genetic evolution in cellular automata	2021-2022
Steve Mwangi	Social and genetic evolution in cellular automata	2019-2020
Gobindropp Mann	Predator and Prey in a Cellular Automata	2019-2020
Josh Lichty	Applying NEAT to decision tree AI	2018-2019
Josiah Hopkins	Domestication of plants and animals	2018-2019
Eviatar Goldschmidt	2D elementary cellular automata and gliders	2018-2019
Harrison Lee	Path finding with the slime mold *Physarum polycephalum*	2018-2019
Terence Caiga	Path finding with the slime mold *Physarum polycephalum*	2018-2019
Peter Bae	Reproductive division of labor in a colony of artificial ants	2018-2019
Simon DeMartini	Multilevel selection can lead to cooperation in a public goods game	2017-2018
Nicholas Mousel	Minecraft as an experimental environment for artificial life research	2016-2017
Justin Arnett	Prey selection in a pack of artificial wolves	2016-2017
Thomas Woodward	Prey selection in a pack of artificial wolves	2016-2017
Melinda Robertson	Role assignment and resource management in human organizations	2016-2017

Professional Service

Journal

Artificial Life	Ad Hoc Reviewer	2016-2023

Cognitive Systems Research	Ad Hoc Reviewer	2019

Workshop Program Chair

SLACE 5: Workshop on Social Learning and Cultural Evolution at ALIFE 2020	Program Co-Chair	2020
SLACE 4: Workshop on Social Learning and Cultural Evolution at ALIFE 2019	Program Co-Chair	2019
EvoSlace: Workshop on the emergence of social learning, language, and culture in natural and artificial agents at ALIFE 2018	Program Co-Chair	2018
SLACE 2: Workshop on Social Learning and Cultural Evolution at ECAL 2017	Program Co-Chair	2017
SLACE: Workshop on Social Learning and Cultural Evolution at ALIFE 2016	Program Co-Chair	2016

Conference Program Committee Member

ALIFE 2023: The 2023 Conference on Artificial Life	Sapporo, Japan	2023
ALIFE 2021: The 2021 Conference on Artificial Life	Prague, Czech Republic	2021
ALIFE 2020: The 2020 Conference on Artificial Life	Montreal, Canada	2020
ALIFE 2019: The 2019 Conference on Artificial Life	Newcastle, England	2019
ALIFE 2018: The 2018 Conference on Artificial Life	Tokyo, Japan	2018
ECAL 2017: The 2017 European Conference on Artificial Life	Lyon, France	2017
ALIFE 2016: The 2016 Conference on Artificial Life	Cancun, Mexico	2016

Programming Competition

International Collegiate Programming Competition North American Championship	Staff	2023
Puget Sound Programming Competition	Co-Director	2022-2024
International Collegiate Programming Competition Pacific Northwest Region Championship	Deputy Director UWT Coach	2022-2024
International Collegiate Programming Competition Pacific Northwest Region Championship	UWT Coach	2013-2024

Elected Service Positions

Non-Tenure Track Faculty Forum University of Washington Tacoma	Chair	2022-2023
Non-Tenure Track Faculty Forum University of Washington Tacoma	Representative	2021-2023
Faculty Council School of Engineering and Technology	CSS Representative	2017-2020

Awards

Distinguished Teaching Award (nomination)	University of Washington Tacoma	2024
Outstanding Teaching Award	School of Engineering and Technology University of Washington Tacoma	2023
Distinguished Teaching Award (nomination)	University of Washington Tacoma	2023
Distinguished Teaching Award (nomination)	University of Washington Tacoma	2022
OSCARS Student's Choice: Outstanding Faculty (nomination)	University of Washington Tacoma	2022
OSCARS Student's Choice: Outstanding Faculty (nomination)	University of Washington Tacoma	2016

Outstanding Teaching (Part Time)	Faculty of Mathematics University of Waterloo	2010
Fred A. McKinnon Teaching Excellence Award	Faculty of Graduate Studies University of Calgary	2006
Ph.D. Entrance Scholarship	Faculty of Graduate Studies University of Calgary	2004
ICPC Mountain Region (2nd Place)	International Collegiate Programming Competition	2003
ICPC World Finals (29th Place)	International Collegiate Programming Competition	2002
ICPC Mountain Region (1st Place)	International Collegiate Programming Competition	2002
Dean's List	Faculty of Arts University of Calgary	2000
Dean's List	Faculty of Arts University of Calgary	1999
Dean's List	Faculty of Science University of Calgary	1999