WAMATYC-Sponsored Speakers

Jen Townsend; Bellevue College

The Mathematics of AI

Friday, April 22, 10:30 AM; Gallery Room

Machine learning is used extensively: It is used to populate your Netflix recommendations and twitter feed – as well as to identify potential criminal and terrorist activity. Machine learning is incredibly powerful: Google's "AlphaGo" AI recently beat the world's top human Go player (a feat experts thought was still decades away). Artificial Intelligence sounds magical – but its principles are rooted in mathematics. In particular, machine learning is founded on methods of linear algebra, optimization, statistics, and probability. In this talk we'll explore some of the ways that undergraduate-level mathematics forms the foundation for some of the most powerful and controversial tools of the past decade.

Jen Townsend teaches math at Bellevue College. She first stumbled across formalized Machine Learning concepts while in graduate school at Georgia Tech, where she wrote programs to predict how legislators would vote based on machine-learning analysis of the text of a bill. Jen's interests in mathematics are diverse; including creative pedagogy, knot theory, combinatorial graph theory, algorithms, and machine learning. She is honored to give a talk at this year's meeting.

Christopher Lee; University of Portland

Recurrence Matrices: An Example of How Teaching Leads to Problems

Friday, April 22, 1:15 PM; Lincoln Room

Opportunities for new explorations and collaborations in mathematics can present themselves in surprising places. For example, one does not usually expect to stumble upon new mathematics while grading exams, but in this talk I will tell the story of how a fruitful collaboration arose in exactly that way. Ultimately, this curiosity from my classroom led me, together with a colleague and a student, to an investigation of matrices whose entries come from recurrence relations.

Christopher Lee, a Wyoming native, earned his Ph.D. from the University of Illinois in 2009; he is currently an Assistant Professor at the University of Portland. His primary field of research lies in differential topology and geometry, but he has interests in a variety of disciplines, including linear algebra and the mathematics of physics. When not teaching or learning math, Chris enjoys playing hockey, cooking, eating, playing with his band, and resisting the tendency for gravity to anchor heavy things to the ground.