

# Applied Mathematics: The Next 50 Years



## DATA SCIENCE & OPTIMIZATION WORKSHOP

Monday, June 17, 2019

8:00 – 9:00	Check-In	ECE Lobby	
9:00 – 10:00	<b>Workshop 1:</b> Optimization & Data Science	ECE 125	Aleksandr Aravkin (UW)
10:00 – 10:30	Break	ECE Lobby	
10:30 – 12:30	<b>Workshop 2:</b> Optimization & Data Science	ECE 125	Aleksandr Aravkin (UW)
12:30 – 14:00	Lunch (on your own)		
14:00 – 15:00	<b>Workshop 3:</b> (A) Stochastic Optimal Control and Applications in Finance (B) Publishing using Jupyter Notebooks (C) Practical Introduction to Artificial Neural Networks and their Applications	(A) ECE 037 (B) ECE 045 (C) ECE 003	(A) Tim Leung (UW) (B) Randy LeVeque (UW) (C) Eli Shlizerman (UW)
15:00 – 15:30	Break	ECE Lobby	
15:30 – 16:30	<b>Workshop 4:</b> (A) Stochastic Optimal Control and Applications in Finance (B) Publishing using Jupyter Notebooks (C) Practical Introduction to Artificial Networks and their Applications	(A) ECE 037 (B) ECE 045 (C) ECE 003	(A) Tim Leung (UW) (B) Randy LeVeque (UW) (C) Eli Shlizerman (UW)

## Tuesday, June 18, 2019

8:00 – 9:00	Check-In	ECE Lobby	
9:00 – 10:00	<b>Workshop 5:</b> Data Science Methods	ECE 125	J. Nathan Kutz (UW)
10:00 – 10:30	Break	ECE Lobby	
10:30 – 12:30	<b>Workshop 6:</b> Data Science Methods	ECE 125	J. Nathan Kutz (UW)
12:30 – 14:00	Lunch (on your own)		
14:00 – 15:00	<b>Workshop 7:</b> (A) Stochastic Modeling of Cancer Evolution (B) Mathematical and Computational Neuroscience (C) Solving PDE in Python with Firedrake	(A) ECE 037 (B) ECE 045 (C) ECE 003	(A) Ivana Bozic (UW) (B) Kameron Harris (UW) (C) Daniel Shapero (UW)
15:00 – 15:30	Break	ECE Lobby	
15:30 – 16:30	<b>Workshop 8:</b> (A) Stochastic Modeling of Cancer Evolution (B) Mathematical and Computational Neuroscience (C) Solving PDE in Python with Firedrake	(A) ECE 037 (B) ECE 045 (C) ECE 003	(A) Ivana Bozic (UW) (B) Kameron Harris (UW) (C) Daniel Shapero (UW)

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## CONFERENCE SCHEDULE

Wednesday, June 19, 2019

8:00 – 8:45	Check-In	NANO Lobby	
8:45 – 9:00	Opening Remarks	JHN 102	Bernard Deconinck, Department Chair Suzanne Hawley, Divisional Dean
9:00 – 10:00	<b>Plenary:</b> How to Mix Binary Fluids	JHN 102	Peter Schmid (ICL)
10:00 – 10:30	Break	NANO Lobby	
10:30 – 12:30	<b>Breakout Session 1:</b> (A) Weather and Climate: A Data-Rich World of Fluid Dynamics (B) Neural and Neuronal Networks (C) Panel: “Applied Mathematics Beyond Academia”	(A) JHN 111 (B) MGH 231 (C) NANO 181	(A) Noah Brenowitz (UW), Chris Bretherton (UW), and KK Tung (UW) (B) Wyeth Bair (UW), Eric Shea-Brown (UW), Panel: “Neuroscience, Artificial Intelligence, and Links between Them” (C) Lauren Lederer (UW), Karen Beaudry (UW), Erik Pearson (Battelle), Susie Sargsyan (HERE Tech.), Keith Johnson (Boeing), Ben Crockett (Nickerson and Associates LLC)
12:30 – 14:00	Lunch (on your own)		
14:00 – 15:00	<b>Plenary:</b> Mad Max: Affine Spline Insights into Deep Learning	JHN 102	Richard Baraniuk (Rice)
15:00 – 15:30	Break	NANO Lobby	
15:30 – 17:30	<b>Breakout Session 2:</b> (A) Optimization (B) Neural and Neuronal Networks (C) Modeling Natural Hazards	(A) JHN 111 (B) MGH 231 (C) NANO 181	(A) James Burke (UW), Aleksandr Aravkin (UW), Daiwei He (UW) (B) Michael Buice (Allen Inst.), Eli Shlizerman (UW), Panel: “Big Data in Neuroscience and Applications”

			(C) David George (USGS), Donna Calhoun (BSU), Peter Mackenzie (UW), Mike Turzewski (UW)
17:30 – 18:30	<b>Special Panel:</b> Future Directions in Applied Mathematics	JHN 102	Chris Bretherton (UW), Chris Jones (UNC), J. Nathan Kutz (UW), Peter Schmid (ICL), Anne Greenbaum (UW), KK Tung (UW)
18:30 – 21:00	<b>Poster Session and Reception</b>	MGH 135	

## Thursday, June 20, 2019

8:00 – 9:00	Check-In	NANO Lobby	
9:00 – 10:00	<b>Plenary:</b> Mathematical Modeling of Targeted Cancer Therapeutics	JHN 102	Trachette Jackson (UM)
10:00 – 10:30	Break	NANO Lobby	
10:30 – 12:30	<b>Breakout Session 3:</b> (A) Waves (B) Mathematical Finance (C) Panel: “Increasing Diversity Participation in Applied Mathematics”	(A) JHN 111 (B) MGH 231 (C) NANO 181	(A) Natalie Sheils (UMN), Vishal Vasani (ICTS), Xin Yang (UW), Jeremy Upsal (UW) (B) Bahman Angoshtari (UW), Patricia Ning (UW), Jize Zhang (UW), Yang Zhou (UW) (C) Kathleen Champion (UW), Matt Lorig (UW), Karen Beaudry (UW), Loyce Adams (UW), Trachette Jackson (UM)
12:30 – 14:00	Lunch (on your own)		
14:00 – 15:00	<b>Plenary:</b> Challenges to the Assimilation of Data into Computational Models	JHN 102	Chris Jones (UNC)
15:00 – 15:30	Break	NANO Lobby	
15:30 – 17:30	<b>Breakout Session 4:</b> (A) Waves (B) Mathematical Modeling of Cancer (C) Rethinking Numerical Analysis Curriculum	(A) JHN 111 (B) MGH 231 (C) NANO 181	(A) Chris Curtis (SDSU), John Carter (SU), Camille Zaig (SU), Naeem Masnadi (UW) (B) Georg Luebeck (Fred Hutch), Hao Yuan Kuen (UW), Chay Paterson (UW), Nathan Lee (UW) (C) Anne Greenbaum (UW), Larry Nazareth (WSU), Tom Trogdon (UCI)

Friday, June 21, 2019

8:00 – 8:45	Check-In	NANO Lobby	
9:00 – 10:00	<b>Plenary:</b> Mathematics of Exchange-Traded Funds: from Price Dynamics to Statistical Arbitrage	JHN 102	Tim Leung (UW)
10:00 – 10:30	Break	NANO Lobby	
10:30 – 12:30	<b>Breakout Session 5:</b> (A) Optimization (B) Data-Driven Discovery: Integrating Machine Learning and Dynamical Systems (C) Panel: “New Approaches to Applied Mathematics Education”	(A) JHN 111 (B) MGH 231 (C) NANO 181	(A) Maryam Fazel (UW), Archis Ghate (UW), Terry Rockafellar (UW) (B) Kathleen Champion (UW), Emily Clark (UW), Bethany Lusch (ANL), Krithika Manohar (Caltech) (C) Craig Gin (UW), Jeremy Upsal (UW), Ben Liu (UW), Tim Leung (UW)

### Want Wi-Fi?

Check your badge for instructions.

### Be sure to stay social!

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