JEFFREY B. WEST

H. Lee Moffitt Cancer Center & Research Institute
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RESEARCH INTERESTS

Computational modeling of cancer tumor progression using evolutionary game theory dynamics to design optimal chemotherapy scheduling.

CURRENT

H. Lee Moffitt Cancer Center & Research Institute August 2017 - Present
Postdoctoral Researcher in Integrated Mathematical Oncology
• Advisor: Dr. A. R. A. Anderson

EDUCATION

University of Southern California August 2012 - August 2017
Ph.D. & M.S. in Mechanical Engineering
- *Advisor:* Paul K. Newton
- *Computational tumor ecology: a model of tumor evolution, heterogeneity, and chemotherapeutic response*

Ohio Northern University August 2008 - May 2012
B.S. in Mechanical Engineering

PUBLICATIONS

Preprints

2. R. Bravo, E. Baratchart, **J. West**, R. Schenck, A. Miller, J. Gallaher, C. Gatenbee, D. Basanta, M. Robertson-Tessi, A. Anderson, 2018, "Hybrid Automata Library: A modular platform for efficient hybrid modeling with real-time visualization.," *submitted, PLOS Comp. Bio.*

1. **J. West**, L. You, M Robertson-Tessi, J. Brown, P.K. Newton, A. Anderson, 2018, "Towards multi-drug adaptive therapy," *submitted, Nature Comm.*

Peer Reviewed Journals

9. **J. West**, P.K. Newton, 2019, "Cellular interactions constrain tumor growth," *Proceedings of the National Academy of Sciences.*

8. **J. West**, M. Robertson-Tessi, K. Luddy, D. Park, D. Williamson, C. Harmon, H. Khong, J. Brown, A. Anderson, 2018, "The immune checkpoint kick start: Optimization of neoadjuvant combination therapy using game theory," *to appear, Journal of Clinical Oncology: Clinical Cancer Informatics.*

7. **J. West**, Y. Ma, P.K. Newton, 2017, "Capitalizing on Competition: An Evolutionary Model of Competitive Release in Metastatic Castrate Resistant Prostate Cancer Treatment," *Journal of Theoretical Biology.*

6. **J. West**, P.K. Newton, 2017, "Optimizing chemo-scheduling based on tumor growth rates," *Mathematical Oncology Handbook.*

5. Y. Ma, **J. West**, P.K. Newton, 2017, "Competitive release in tumors," *Mathematical Oncology Handbook.*

4. **J. West**, P.K. Newton, 2017, "Chemotherapeutic dose scheduling based on tumor growth rates provides a case for low-dose metronomic high-entropy therapies," *Cancer Research.*

3. **J. West**, Z. Hasnain, P.K. Newton, 2016, "The prisoner's dilemma as a cancer model," *Convergent Science: Physical Oncology.*

2. **J. West**, Z. Hasnain, P.K. Newton, 2016, "An evolutionary model of tumor cell kinetics and the emergence of molecular heterogeneity driving Gompertzian growth," *SIAM Review.*

1. John-David Yoder, **J. West**, E. Baumgartner, M. Perrollaz, M. Seelinger, M. Robinson, 2013, "Experiments comparing precision of stereo-vision approaches for control of an industrial manipulator," *Spring Tracts in Advanced Robotics Vol. 88 pp 245-256.*

Technical Reports

4. **J. West**, D. Park, C. Harmon, D. Williamson, P. Ashcroft, D. Maestrini, A. Ardaseva, R. Bravo, P. Sahoo, H. Khong, K. Luddy, M. Robertson-Tessi, 2017, "Evolutionary exploitation of PD-L1 expression in hormone receptor positive breast cancer," *Biorxiv.*

3. E. Kim, R. Schenck, **J. West**, W. Cross, V. Harris, J. McKenna, H. Cho, E. Coker, S. Lee-Kramer, K. Tsai, E. Flores, C. Gatenbee, 2017, "Targeting the Untargetable: Predicting Pramlintide Resistance Using a Neural Network Based Cellular Automata," *Biorxiv.*

2. **J. West**, M. Hromatka, M. Holt, S. Biaz., 2012, "A Fuzzy Logic approach to collision avoidance in smart UAVs," *Technical Report #CSSE12-05, Auburn University.*

1. **J. West**, P. Ling, P. Grewal, 2010, "Urban Food Production season extension techniques," *Internship Program (ORIP) Technical Report.*

AWARDS

Body Engineering Los Angeles GK-12 Fellowship 2016
Fellows improve their communication, teaching, teamwork, and public outreach skills through active collaboration with master teachers in local middle schools, advancing the education efforts relating to science, technology, engineering and math (STEM) education.

Tau Beta Pi Graduate Fellowship 2012
Awarded on the basis of high scholarship, strong faculty recommendations, definite extracurricular contributions, unusual promise of substantial achievement through a definite plan or purpose, and a program through which accomplishment will advance the interest of the engineering profession.

CONFERENCE TALKS

European Society for Math. and Theoretical Bio. Univ. Lisbon, Portugal
• Talk: "Cellular cooperation shapes tumor growth: a statistical mechanics approach" July 2018
• Talk: "The immune checkpoint kick start: optimization of combination therapy"

Mathematics of Life Colloquium Mathematikon, Heidelberg, Germany
• Invited Speaker: "Modeling the evolution of cancer from a game theoretic perspective" Feb. 2018

Computational Genomics Summer Institute UCLA, Los Angeles, CA
• Flash talk: "Modeling evolutionary principles in anticancer therapy" Dec. 2017

Biology and Medicine through Mathematics Conference Virginia Commonwealth Univ., Richmond, VA
• Talk: "Adaptive therapy: modeling evolutionary principles in anticancer therapy" May 2017

Integrated Math Oncology Seminar Moffitt Cancer Center, Tampa, FL
• Postdoctoral Interview: "The Prisoner's dilemma in cancer: chemotherapeutic dose scheduling" May 2017

Center for Applied Molecular Medicine Departmental Seminar Univ. of Southern California, Los Angeles, CA
• Talk: "The Prisoner's dilemma in cancer: chemotherapeutic dose scheduling" April 2017

European Society for Math. and Theoretical Bio. Univ. Nottingham, Nottingham, U.K.
• Talk: "The Prisoner's dilemma as a cancer model" July 2016

Southern California Applied Mathematics Symposium Claremont Grad. Univ., Claremont, CA
• Talk: "The Prisoner's dilemma in cancer" June 2016

Convergent Science Initiative in Cancer Scripps Research Institute, La Jolla, CA
• Talk: "The Prisoner's dilemma in cancer" April 2016

The Kuhn Laboratory Research Circle Seminar The Bridge@USC, Los Angeles, CA
• Talk: "The Prisoner's dilemma in cancer" May 2016

CONFERENCE POSTERS

Evolutionary Biology and Ecology of Cancer Wellcome Genome Campus, Cambridge, UK
• Flash talk / poster: "The immune checkpoint kick start: optimization of combination therapy" June 2018

Cancer Evolution and Ecology: Theory and Clinical Practice St. Petersburg, FL
• Poster: "The immune checkpoint kick start: optimization of combination therapy" May 2018

Understanding Cancer through Evolutionary Game Theory Lorentz Center, Leiden, Netherlands
• Flash talk / poster: "The trade off between metastatic risk and tumor progression" Jan. 2018

International Society for Evolution, Ecology and Cancer Arizona State University, Tempe, AZ
• Flash talk / poster: "Sweeping through resistance: the impact of genetic instability on fixation" Dec. 2017

RESEARCH EXPERIENCE

Auburn University June - August, 2012
Research Intern, Computer Science Department
• *Supervisor*: Dr. Saad Biaz
• UAV Collision avoidance algorithms; ROS; fuzzy logic control

Ohio Northern University April - June, 2012
Independent Research, Mechanical Engineering Department
• *Supervisor*: Dr. John-David Yoder
• Robotic arm manipulation; computer vision; error analysis

University of Southern California June - August, 2011
Research Intern, Computer Science Department
• *Supervisor*: Dr. Maja Matari
• Human-robot-interaction; ROS; python; state machine controller

The Ohio State University June - August, 2010
Research Intern, Ohio Agricultural Research and Development Center
• *Supervisor*: Dr. Peter Ling
• Local food production; growing season extension; energy storage; community gardens

The Ohio State University June - August, 2009
Research Intern, Ohio Agricultural Research and Development Center
• *Supervisor*: Dr. Peter Ling
• Machine vision; error analysis; crop yield prediction
• Best Undergraduate Intern Summer Research Award

TEACHING

Courses

USA 101: The United States: An American Culture Series — Fall 2012, 2013, 2014

Lectures

AME 526: Engineering Analytical Methods — February 9, 2015

AME 341b: Compressible Flow Dynamics — April 7, 2014

AME 341b: Compressible Flow Dynamics — April 1, 2013

Teaching Assistant

AME 525: Engineering Analytical Methods I — Fall 2015

AME 525: Engineering Analytical Methods II — Spring 2015, Fall 2016

AME 341b: Mechoptronics, Laboratory Part A — Fall 2012, 2014

AME 341b: Mechoptronics, Laboratory Part B — Spring 2013, 2014