

Jeffrey West

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CURRENT

H. Lee Moffitt Cancer Center & Research Institute, Tampa, Florida, USA

Postdoctoral Researcher in Integrated Mathematical Oncology

2017 – current

- **Adviser:** Dr. A. R. A. Anderson

EDUCATION

University of Southern California, Los Angeles, California, USA

- Ph.D. in Mechanical Engineering

2014 – 2017

- **Adviser:** Dr. Paul K. Newton

- **Thesis:** Computational tumor ecology: a model of tumor evolution, heterogeneity, and chemotherapeutic response

- M.S. in Mechanical Engineering

2012 – 2014

Ohio Northern University, Ada, Ohio, USA

- B.S. in Mechanical Engineering

2008 – 2012

RESEARCH INTERESTS

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

PUBLICATIONS

PREPRINTS

- [12] **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,” *submitted, JCO*.
- [11] **J. West**, P.K. Newton, 2017, “Cellular coupling shapes tumor growth: a statistical mechanics mathematical model,” *submitted, PNAS*.
- [10] 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*.
- [9] **J. West**, Y. Ma, P.K. Newton, 2017, “Capitalizing on Competition: An Evolutionary Model of Competitive Release in Metastatic Castrate Resistant Prostate Cancer Treatment,” *submitted, Journal of Theoretical Biology*.

JOURNALS

- [8] **J. West**, P.K. Newton, 2017, “Optimizing chemo-scheduling based on tumor growth rates,” *to appear: Mathematical Oncology Handbook*.
- [7] Y. Ma, **J. West**, P.K. Newton, 2017, “Competitive release in tumors,” *to appear: Mathematical Oncology Handbook*.
- [6] **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*.
- [5] **J. West**, Z. Hasnain, P.K. Newton, 2016, “The prisoner’s dilemma as a cancer model,” *Convergent Science: Physical Oncology*.
- [4] **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*.
- [3] 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

- [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	<p>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.</p> <p>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.”</p>
CONFERENCE TALKS	<p>Flash talk / poster: Evolutionary Biology and Ecology of Cancer</p> <ul style="list-style-type: none"> ▪ “The immune checkpoint kick start: optimization of combination therapy” ▪ Wellcome Genome Campus, Cambridge, U.K. Jun 2018 <p>Poster: Cancer Evolution and Ecology: Theory and Clinical Practice</p> <ul style="list-style-type: none"> ▪ “The immune checkpoint kick start: optimization of combination therapy” ▪ St. Petersburg, FL May 2018 <p>Invited speaker: Mathematics of Life Colloquium</p> <ul style="list-style-type: none"> ▪ “Modeling the evolution of cancer from a game theoretic perspective” ▪ Mathematikon, Heidelberg, Germany Feb 2018 <p>Flash talk / poster: Understanding Cancer through Evolutionary Game Theory</p> <ul style="list-style-type: none"> ▪ “The trade off between metastatic risk and tumor progression” ▪ Lorentz Center, Leiden, Netherlands Jan 201 <p>Flash talk / poster: International Society for Evolution, Ecology and Cancer</p> <ul style="list-style-type: none"> ▪ “Sweeping through resistance: the impact of genetic instability on fixation” ▪ Arizona State University, Tempe, AZ Dec 2017 <p>Flash talk: Computational Genomics Summer Institute</p> <ul style="list-style-type: none"> ▪ “Modeling evolutionary principles in anticancer therapy” ▪ UCLA, Los Angeles, CA Dec 2017 <p>Biology and Medicine through Mathematics Conference</p> <ul style="list-style-type: none"> ▪ “Adaptive therapy: modeling evolutionary principles in anticancer therapy” ▪ Virginia Commonwealth University, Richmond, VA May 2017 <p>Postdoctoral Interview: Integrated Mathematical Oncology Department Talk</p> <ul style="list-style-type: none"> ▪ “The Prisoner’s dilemma in cancer: chemotherapeutic dose scheduling” ▪ Moffitt Cancer Center, Tampa, FL May 2017 <p>Center for Applied Molecular Medicine Departmental Seminar</p> <ul style="list-style-type: none"> ▪ “The Prisoner’s dilemma in cancer: chemotherapeutic dose scheduling” ▪ University of Southern California, Los Angeles, CA Apr 2017 <p>European Society for Mathematical and Theoretical Biology Conference (ECMTB)</p> <ul style="list-style-type: none"> ▪ “The Prisoner’s dilemma as a cancer model” ▪ University of Nottingham, Nottingham, U.K. Jul 2016 <p>Southern California Applied Mathematics Symposium (SOCAMS)</p> <ul style="list-style-type: none"> ▪ Claremont Graduate University, Claremont, CA Jun 2016 <p>Convergent Science Initiative in Cancer (CSI)</p> <ul style="list-style-type: none"> ▪ Scripps Research Institute, La Jolla, CA Apr 2016 <p>The Kuhn Laboratory (Research Circle Seminar)</p> <ul style="list-style-type: none"> ▪ The Bridge@USC, Los Angeles, CA May 2015

**RESEARCH
EXPERIENCE**

- Auburn University**, Auburn, Alabama
- Research Intern, Computer Science Department Jun 2012 – Aug 2012
 - Supervisor: Dr. Saad Biaz
 - UAV Collision avoidance algorithms; ROS; fuzzy logic control;
- Ohio Northern University**, Ada, Ohio
- Independent Research, Mechanical Engineering Department Apr 2012 – Jun 2012
 - Supervisor: Dr. John-David Yoder
 - Robotic arm manipulation; computer vision; error analysis;
- University of Southern California**, Los Angeles, California
- Research Intern, Computer Science Department Jun 2011 – Aug 2011
 - Supervisor: Dr. Maja Mataric
 - Human-robot-interaction; ROS; python; state machine controller;
- Ohio State University**, Wooster, Ohio
- Research Intern, Ohio Agricultural Research and Development Center Jun 2010 – Aug 2010
 - Supervisor: Dr. Peter Ling
 - Local food production; growing season extension; energy storage; community gardens;
 - Research Intern, Ohio Agricultural Research and Development Center Jun 2009 – Aug 2009
 - 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 Cultures 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 Assistantships**
- AME 525: Engineering Analytical Methods I Fall 2015
 - AME 526: Engineering Analytical Methods II Spring 2015
 - AME 341b: Mechoptronics, Laboratory Part B Spring 2013, 2014
 - AME 341a: Mechoptronics, Laboratory Part A Fall 2012, 2014
- Engineering Mentoring**
- Viterbi Graduate Mentorship Program Spring 2016
 - Viterbi Undergraduate Merit Researcher Program, 3 mentees 2013 – 2015