Kiley Graim

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EDUCATION

2016-2020 Postdoctoral Scholar, Flatiron Institute, Simons Foundation
New York City, NY

2016-2020 Visiting Research Collaborator, Lewis-Sigler Institute for Integrative Genomics,
Princeton University, Princeton, NJ

2012-2016 Ph.D., Biomolecular Engineering, University of California, Santa Cruz
Santa Cruz, CA
Thesis title: Learning from New Perspectives: Using sparse data and multiple views to predict cancer progression and treatment

2012 M.S., Computer Science,
Colorado State University, Fort Collins, CO
Thesis title: Leveraging expression and network data for protein function prediction

2008 B.S., Computer Science,
Colorado State University, Fort Collins, CO

RESEARCH & WORK EXPERIENCE

2021 - Assistant Professor
Department of Computer & Information Science & Engineering, University of Florida
- Pan-mammalian cancer genomics
- Precision oncology

2016-2020 Flatiron Research Fellow
Principal Investigator: Olga Troyanskaya
Simons Foundation, Flatiron Institute, Princeton University
- Canine Mammary Tumors as a translational cancer genomics model
- Bayesian network models of fetal brain development

2012-2016 Ph.D., Biomolecular Engineering
Principal Investigator: Josh Stuart
University of California, Santa Cruz CA
- Multiple-view learning to predict drug sensitivity
- Community detection in sparse genomic and imaging networks

2009-2012 M.S., Computer Science
Principal Investigator: Asa Ben-Hur
Colorado State University, Fort Collins, CO
- GOstruct. Prediction of protein function using structured output methods.

2007-2008 Undergraduate Researcher in Computer Science
- Compiler research (Advisor: Michelle Strout)
- Network routing research (Advisor: Dan Massey)

2005-2009 Engineering Internships

- Total Benchmark Solution – R&D Intern
- VMWare – Globalization Engineer
- Hewlett Packard – Firmware Engineer

PROFESSIONAL SERVICE

2021 Served on NIH SBIR panel

2020 Served on NSF BIO panel

2019-2020 Simons Foundation IDEA Scholar Committee Member

2015 Biomolecular Engineering Graduate Student Representative

2012-2016 Women in Science and Engineering Mentoring & Outreach

2010-2012 Computer science department women's outreach program organizer

AWARDS AND HONORS

2016-2020 Flatiron Research Fellow

2014-2015 Agilent Grant "Multiple View Learning to Predict Survival Prognosis,"
$50,000 awarded by Agilent University Research sponsorship

2014 Winner, DREAM9 Sub-challenge 1: Gene Essentiality Prediction

2014 Prostate Cancer Program Scientific Research Retreat, Best Clinical Science Poster Award

2012-2013 Regents' Fellowship
$14,000 awarded by the University of California, Santa Cruz

2013 Winner, DREAM8 Challenge 1A: Breast Cancer Network Inference
$15,000 awarded by Heritage Provider Network

2012 Grace Hopper Scholarship for Best Poster Award
$700 awarded by Rocky Mountain Celebration of Women in Computing

INVITED TALKS AND LECTURES

2020 Biostatistics Department Seminar
Colorado School of Public Health
"Data Driven Insights Into cancer: from machine learning methods to biological discoveries"

2020 Department of Computer & Information Science & Engineering Seminar
University of Florida
"Data Driven Insights Into cancer: from machine learning methods to biological discoveries"

2020 Department of Computer Science Seminar
Dalhousie University
"Data Driven Insights Into cancer: from machine learning methods to biological discoveries"

2019 Mari Lowe Seminar
University of Pennsylvania Veterinary School of Medicine
"Modeling molecular development of breast cancer in canine mammary tumors"

2017 Cancer Genetics Seminar
Oslo University Hospital
"Canine Mammary Tumors as a translational model of human breast cancer"

2015 Chancellor's Associates Reception
University of California, Santa Cruz
"Detecting Hidden Networks in Cancer with Genomics"

PUBLICATIONS – PEER REVIEWED

1. **Graim, K.**, Gorenshteyn, D., Robinson, D.G., Carriero, N.J., Cahill, J.A., Carreiro, N., Chakrabarti, R., Goldschmidt, M.H., Durham, A.C., Funk, J., Storey, J.D., Kristensen, V.N., Theesfeld, C.L., Sorenmo, K.U., & Troyanskaya, O.G. (2021). Modeling molecular development of breast cancer in canine mammary tumors. ***Genome Research***.

2. **Graim, K.**, Friedl, V., Houlahan, K.E., & Stuart, J.M. (2019). PLATYPUS: A Multiple--View Learning Predictive Framework for Cancer Drug Sensitivity Prediction. ***Pacific Symposium on Biocomputing*.**

3. Hmeljak, J., Sanchez-Vega, F., Hoadley, K. A., Shih, J., Stewart, C., Heiman, D., ... **Graim, K.**, …& Bowlby, R. (2018). Integrative molecular characterization of malignant pleural mesothelioma. ***Cancer discovery*.**

4. Cahill, J. A., Heintzman, P. D., Harris, K., Teasdale, M. D., Kapp, J., Soares, A. E., ... **Graim, K.**, … & Kisleika, A. A. (2018). Genomic evidence of widespread admixture from polar bears into brown bears during the last ice age. ***Molecular biology and evolution***, *35*(5), 1120-1129.

5. Carlin, D. E., Paull, E. O., **Graim, K.**, Wong, C. K., Bivol, A., Ryabinin, P., ... & Stuart, J. M. (2017). Prophetic Granger Causality to infer gene regulatory networks. ***PloS one***, *12*(12), e0170340.

6. Newton, Y., Novak, A. M., Swatloski, T., McColl, D. C., Chopra, S., **Graim, K.**, ... & Chopra, M. (2017). TumorMap: Exploring the Molecular Similarities of Cancer Samples in an Interactive Portal. ***Cancer Research*,** *77*(21), e111-e114.

7. Gönen, M., Weir, B. A., Cowley, G. S., Vazquez, F., Guan, Y., Jaiswal, A., ... **Graim, K**., … & Howell, S. (2017). A Community Challenge for Inferring Genetic Predictors of Gene Essentialities through Analysis of a Functional Screen of Cancer Cell Lines. ***Cell systems*.**

8. **Graim, K.,** Liu, T.T., Achrol, A.S., Paull, E.O., Newton, Y., Chang, S.D., Harsh, G.R., Cordero, S.P., Rubin, D.L. and Stuart, J.M., (2017). Revealing cancer subtypes with higher-order correlations applied to imaging and omics data. ***BMC medical genomics***, *10*(1), p.20.

9. Cancer Genome Atlas Research Network, (2017). Comprehensive and Integrative Genomic Characterization of Hepatocellular Carcinoma. ***Cell***, *169*(7), pp.1327-1341.

10. Fishbein, L., Leshchiner, I., Walter, V., Danilova, L., Robertson, A. G., ... **Graim, K.**, … & Ling, S. (2017). Comprehensive molecular characterization of pheochromocytoma and paraganglioma. ***Cancer Cell***, *31*(2), 181-193.

11. Hill, S. M., Heiser, L. M., Cokelaer, T., Unger, M., Nesser, N. K., Carlin, D. E., … , **Graim, K.**, … , Mukherjee, S. (2016). Inferring causal molecular networks: empirical assessment through a community-based effort. ***Nature Methods***, *13*(4), 310-318.

12. Smith, B. A., Sokolov, A., Uzunangelov, V., Baertsch, R., Newton, Y., **Graim, K.**, ... & Witte, O. N. (2015). A basal stem cell signature identifies aggressive prostate cancer phenotypes. ***Proceedings of the National Academy of Sciences***, *112*(47), E6544-E6552.

13. Cancer Genome Atlas Research Network. "The Molecular Taxonomy of Primary Prostate Cancer." ***Cell*** 163, no. 4 (2015): 1011-1025.

14. Radivojac P, Clark WT, Oron TR, Schnoes AM, Wittkop T, Sokolov A, **Graim K**, ... & Schaefer C. (2013). A large-scale evaluation of computational protein function prediction. ***Nature Methods***, *10*(3), 221-227.

15. Sokolov, A., Funk, C., **Graim, K**., Verspoor, K., & Ben-Hur, A. (2013). Combining heterogeneous data sources for accurate functional annotation of proteins. ***BMC Bioinformatics***, *14*(Suppl 3), S10.

CONFERENCE/MEETING ORAL PRESENTATIONS

2019 AFCRI-Penn Cancer Research Postdoctoral Symposium
Philadelphia, PA
"Modeling molecular development of breast cancer in canine mammary tumors"

2019 Pacific Symposium on Biocomputing (PSB)
Big Island, HI
"PLATYPUS: A multiple-view learning predictive framework for cancer drug sensitivity prediction"

2017 Computational Systems for Integrative Genomics
Princeton, NJ
"Persephone Rises: Profiling Postmortem Expression"

2015 PBSE Retreat
Santa Cruz, CA
"Multiple biological perspectives inform cancer drug sensitivity predictions"

2015 Spring Data Science Day
Santa Cruz, CA
"Early Detection of Metastatic Disease in Prostate Adenocarcinoma"

2014 The Cancer Genome Atlas (TCGA) Network Face-to-Face Meeting
NIH main campus, Bethesda, MD
"A Pan-Cancer signature catalog to classify tumor mixtures: application to recognition of metastatic disease in prostate cancer"

TEACHING AND RESEARCH MENTORING

Trainee Awards

2021 AAPS Best Poster Award, Zachary Greenberg (UF Pharmacy)
An End-to-End Artificial Peptide-to-Receptor Targeting Strategy to Develop Exosome Homing Ability for Precision Drug Delivery

Courses Taught

2021 Bioinformatics (undergraduate)

2010-2013 Graduate Teaching Assistant
- Intro to bioinformatics for biology and computer science students, UCSC
- Systems security, CSU
- Introduction to compilers, CSU
- Algorithms and Data Structures, CSU

Mentoring

Current Doctoral Students

2021 - Zachary Greenburg, (co-advised with Dr. Mei He, UF Pharmacy), precision cancer immunotherapy
2021 - Leslie Smith, diversity-aware precision medicine
2021 - Tina Salehi Torabi, comparative genomics for pediatric cancer precision immunotherapy

Current Doctoral Students (other labs)

2021 - Harold Jimenez Polo, UF Math
Member: qualifying exam committee

2021 - Alexander Webber, UF CISE
Member: qualifying exam committee

Current Undergraduate Researchers

- Soumya Gottipati (2020-2021)
- Adam Oprychal (fall 2021)
- Adriel Nittala (fall 2021)

Previous Graduate / Undergraduate / High School Researchers

- Ana Ausek (summer 2021)
- Nicole Wong, high school student
- Zhimao (Jack) Chen, high school student
- Andrei Iosifescu, high school student
- Maximilian Dittigen, high school student
- Soumya Gottipati, undergraduate student
- Tess Kichuk, M.D./Ph.D. student
- Verena Friedl, M.S. student
- Katie Houlahan, undergraduate student