Developing a career plan, collaborations and new expertise during the shutdown
MIPS resources

- http://med.stanford.edu/mips.html - links to resources

Virtual Events

New: Tuesday’s MIPS Office Hours
March 31, 2020 | 2:00-3:00pm, Zoom
Drop by at any time during the hour to ask questions or to enjoy a virtual cup of coffee!

New: Thursday's MIPS Roundtable
April 2, 2020 | 1:30-2:30pm, Zoom
1:30pm - “Developing a career plan, collaborations and new expertise during the shutdown”
Kathy Ferrara, PhD
2:00pm - “How to create online lectures using Camtasia, Playposit and Canva”
Angie Louie, PhD

New: Friday’s MCTC Virtual Happy Hour
April 3, 2020 | 5:00-6:00pm, Zoom
Please join the MIPS/Canary Trainee Council for a Zoom conference Happy Hour from wherever you are.

COVID-19 MIPS Resource Guide

- Events, Meetings & Trainings
  - Spotlight Events
    - Talking to young people about COVID-19
      - April 2, 2020 - 5:00pm - Zoom
        - This webinar will address how to talk with children and teens about the anxiety they are likely to experience due to COVID-19 and shelter-in-place orders and describe some strategies to promote positive mental health and well-being. Laura Roberts, MD, chair of the Department of Psychiatry and Behavioral Sciences, will moderate the webinar. Speakers include Victor Carrion, MD, director of the Stanford Early Life Stress and Pediatric Anxiety Program and Elizabeth Reichert, PhD, clinical assistant professor of psychiatry and behavioral sciences.
Outline

• Career-related resource
• Formal courses
• Webinars
• Informal collaboration
...and this thing, if it does indeed exist, offers enlightenment, hope, and the potential to unlock the mysteries of the universe to all people? Sounds very powerful and maybe too dangerous to be trusted to the masses. What did you call it again?

Science, Senator. It's called science.
“Go get someone from accounting to kill this damn excitement.”
My career (many chapters)

- Pediatric Physical Therapist
- Personal tragedy--- actually several within a short period
- BS/MS Engineering
- Engineer- Start Up (very romantic and fun but died)
- then GE Medical Systems (great experience till GE moves to WI)
- PhD EEE
- Academics (CSUS, Virginia, UC Davis, Stanford)
- Chair for 6 years
- Return to research
Career-related resources for postdocs

- Understanding and leveraging your strengths
- Managing up under COVID-19
- Preparing for faculty careers
- Advanced English for Non-Native Speakers
- PFC Panel: Academic Non-Faculty Leadership Roles
- Teaching Workshop for Postdocs
- Software carpentry
- Mentoring in research
Grant writing mentoring

- Expand this during this period?
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“My advice is to learn all the tricks you can while you’re young”

Used with permission from C. Barreto, “They moved my book,” Little Brown and company
Formal courses

RAD 229: MRI Sequences and Signals

Magnetic Resonance Imaging (MRI) uses sequences of radiofrequency excitation and magnetic field gradients to generate a signal and form images. Numerous common and advanced sequences will be studied, including analysis techniques to predict signal and contrast levels, and to measure and reduce unwanted image artifacts. Prerequisite: EE 369B.

Contact  Ennis, D https://web.stanford.edu/class/rad229/
RAD 260: Computational Methods for Biomedical Image Analysis and Interpretation (BIOMEDIN 260, CS 235)

The latest biological and medical imaging modalities and their applications in research and medicine. Focus is on computational analytic and interpretive approaches to optimize extraction and use of biological and clinical imaging data for diagnostic and therapeutic translational medical applications. Topics include major image databases, fundamental methods in image processing and quantitative extraction of image features, structured recording of image information including semantic features and ontologies, indexing, search and content-based image retrieval. Case studies include linking image data to genomic, phenotypic and clinical data, developing representations of image phenotypes for use in medical decision support and research applications and the role that biomedical imaging informatics plays in new questions in biomedical science. Includes a project. Enrollment for 3 units requires instructor consent. Prerequisites: programming ability at the level of CS 106A, familiarity with statistics, basic biology. Knowledge of Matlab or Python highly recommended.

Contact Kevin Thomas <kathoma@stanford.edu>
Formal courses

CS106A Code in Place

As an act of community service during the COVID-19 pandemic, computer science professor Mehran Sahami ’92 M.S. ’93 Ph.D. ’99 and assistant professor Chris Piech ’10 M.S. ’11 Ph.D. ’16 will offer a shortened, online-only version of the introductory computer science course CS 106A to the public for free this spring. The class, which the instructors have titled “Code in Place,” will be taught in the programming language Python and is accepting applications from “anyone in the world” who is at least 18 years old and has access to a computer.

Contact https://comedu.stanford.edu/codeinplace/assn0/
Formal courses

CBIO 242: Cellular and Clinical Aspects of Cancer
CBIO 275: Tumor Immunology (IMMUNOL 275)
COMPMED 123: Immunology of Infectious Disease
BIOE 201C: Diagnostic Devices Lab (BIOE 301C)
BIOE 212: Introduction to Biomedical Informatics Research Methodology
(BIOMEDIN 212, CS 272, GENE 212)
BIOE 256: Technology Assessment and Regulation of Medical Devices
(MS&E 256)
BIOE 301C: Diagnostic Devices Lab (BIOE 201C)
BIOE 313: Neuromorphics: Brains in Silicon (EE 207)
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• Formal courses
• **Webinars**
• Informal collaboration

“"I need to dedicate myself to a lifetime of continual learning because any information I acquire seems to become obsolete in three weeks."
Webinars

ACS/Stanford
April 1: COVID-19 and AI: A Virtual Conference
April 2: How You Can Improve Global Public Health (Free ACS Webinar)
April 9: Patents: Catalyze Your Career (Free ACS Webinar)
April 16: The 3D Printing Revolution: Advances in Material Design and Methods (Free ACS Webinar)

WMIS ([http://www.wmis.org](http://www.wmis.org))
Pre-recorded webinars
April 1: Applying Imaging to Study Infectious Diseases

AACR (you could spend a month here!)
[https://www.aacr.org/meeting/aacr-annual-meeting-2020/coronavirus-information/](https://www.aacr.org/meeting/aacr-annual-meeting-2020/coronavirus-information/)
RSNA AI webinars (these are not free)
https://www.rsna.org/en/education/ai-resources-and-training/webinars
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Ferrara lab can contribute ... Transcriptomic Analysis

Preliminary Pipeline: Downstream RNA sequencing data can be used for information mining and exploratory hypothesis development for experimental guidance.
Gene set enrichment analysis: A knowledge-based approach for interpreting genome-wide expression profiles

Gene Set Enrichment Analysis (GSEA) is a computational method that determines whether an apriori defined set of genes shows statistically significant, concordant differences between two biological states (e.g. phenotypes).

Cross-Platform Image Analysis

• Works with preclinical and clinical 2D and 3D imaging datasets, including CT, MRI, PET, dynamic images, and histology
• Manual and automatic ROI definition
• Open source package written in IDL, amenable to addition of new input and processing modules
Ted Graves Wants To Learn ...

Deep Learning Methods
- Generic frameworks for training AI algorithms (eg, U-Net)
- Application of AI/DL to image processing and segmentation tasks

Practical Monte Carlo Approaches
- Application of Monte Carlo toward radiation dosimetry
- Incorporation into existing code (eg, RT_Image)
- Exploiting distributed computing resources