Mr. Maxim Zaslavsky

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Education

- **Stanford University, Computer Science PhD** — 2018 –
  Awarded National Science Foundation Graduate Research Fellowship

- **Princeton University, Bachelor of Science in Engineering, Computer Science** — 2013 – 2017

  Graduated *summa cum laude* (highest honors).

  Academic focus on **applying data science to problems in biology and healthcare**.

  Elected to Tau Beta Pi, Sigma Xi honor societies.

  One of two graduating engineers awarded the Tau Beta Pi Prize for contributions to School of Engineering (2017).

  Computing Research Association Outstanding Undergraduate Researcher Award nominee (2016).

  Princeton endorsee for Rhodes Scholarship (2016). Certificate in Statistics and Machine Learning.

Research Experience

- ***Bayesian models to estimate immune infiltrate quantification from bulk tumor RNA sequencing and validate as clinical biomarker***
  with Jeff Hammerbacher (Icahn School of Medicine at Mount Sinai) — 2016 – Present

  - Searched for cancer immunotherapy biomarkers by quantifying immune cell infiltration from bulk tumor RNA sequencing. First author; paper in progress.

  - Identified major issues in existing deconvolution methods for quantifying the infiltration of various immune cell types into the tumor microenvironment – which has been proposed as a metric predictive of survival but is currently measured manually by pathologists.

  - Created new hierarchical mixture deconvolution model that can use RNA-seq data.

  - Applying method to public Cancer Genome Atlas dataset to examine prognostic significance.

  - Poster presentations at Penn Symposium on Mathematical and Computational Biology (May 2017) and CRI International Cancer Immunotherapy Conference (upcoming).

- ***Scaling Bayesian optimization to high dimensions for iterative experimental design in biology***
  with Barbara Engelhardt, Jon Pillow (Princeton computer science, neuroscience) — 2015 – Present

  - Co-first author. Preparing for submission.

  - Identified problems that prevent Bayesian optimization (statistical technique for optimizing "black-box" objective functions that are expensive or slow to evaluate) from use in high dimensions. Developed practical new approach to mitigate issues.

  - Applied Bayesian optimization for first time to iterative design of guide sequences for new CRISPR gene editing technique. Guide sequences must be refined to target intended locations without unexpected edits elsewhere.

  - Our improved high-dimensional Bayesian optimization can dramatically accelerate discovery of working CRISPR guide sequences and other iterative scientific fields, without requiring complex heuristics for experimental design.

Industry Experience

- **The New York Times** — New York, NY
  Data Science group member — direct report to Chief Data Scientist — Summer 2015

  - Created first model to predict customer cancellation calls, perform user behavior segmentation to understand cancellation reasons, and to suggest retention actions, in close collaboration with retention and customer care teams.

  - With Executive Director of Strategy, developed model to understand and predict international engagement and inform corresponding business decisions for NYT Global expansion.

  - With product team, ran exploratory data analysis studies to validate assumptions underlying product development, specifically about subscription tendency based on readership patterns.

  - One of five interns selected to discuss digital strategy with chairman/publisher.

  - Started weekly learning hour, attended by employees across the organization, focusing on good software development practices, modern infrastructure, and statistical survival modeling.

- **Nest Labs, Google, Inc.** — Palo Alto, CA
  Engineer, Data Services Integration Team — *Summer 2014*
  - Tested new remote-device data processing pipeline under high load and with pathological data to identify and fix sources of failures. Developed comprehensive monitoring to detect failure.
  - With embedded software integration team, analyzed device health metrics to identify needle-in-the-haystack software defects.
  - Extended internship to shadow Google VP of Virtual Reality. Built first prototype of interconnected camera hardware rig.

- **NeuroVigil, Inc.** — La Jolla, CA
  Developer for neuroscience device startup — direct report to the CEO — *2011 – 2013*
  - Wrote mobile and server software to process, visualize, and store EEG streaming data in real time.
  - The technology is used as BCI to help Stephen Hawking and other ALS patients speak, and as diagnostic tool for outpatient pharmaceutical clinical trials.

Projects and Leadership

- **Princeton Silicon Valley TigerTrek** — *2014 – Present*
  Program co-organizer (team of two). Founding member of Board of Directors.
    Led 2014 TigerTrek, the trip that brings 20 undergrads to Silicon Valley for a week of Q&As with Ron Conway, Jack Dorsey, John Doerr, Keith Rabois, Meg Whitman, Sal Khan, and others. Responsibilities included:
  - Fundraised and managed over $35,000 to make trip possible.
  - Ran marketing campaign, producing record number of applicants (220+) from which faculty selected top 20.
  - Launched website with highlights of past trips for campus and external community.
  - Designed trip program and coordinated logistics, including meetings, mentorship, and alumni reception.
  - Co-author of board constitution (2017).

- **ReCal (Rethinking Calendar)** — *2014 – 2017*
  Co-founder, developer, marketer
  - Created ReCal, the web and mobile app that 1 in 2 Princeton students use for course selection.
  - Led team of four in original class project that produced ReCal, with advisor Prof. Brian Kernighan.
  - Single-handedly marketed app on campus to acquire 5,000+ users.

- **Princeton Undergraduate Student Government** — *2016 – 2017*
  Co-chair, TigerApps committee
  - Built sustainable infrastructure for student app development and maintenance, using cloud services and the modern infrastructure technology Docker.
  - Led discussions with administrators and faculty to draft new data access and sharing policies on campus and to appropriate funds for support of student development.

Additional Information

- Active member on Stack Overflow (computer science network): 9k+ reputation points (top 4% of all users); 17k reputation points across entire Stack Exchange network.
- "You've Chosen Computer Science – Now Let's Choose What to Use it For" invited talk at University of California, San Diego Summer Program for Incoming Students, in Computer Science and Engineering department, about applications of computer science to other fields (2014).
- Active musician (2003 – Present). Jazz pianist in Princeton University Jazz Ensembles (2013 – 2017). Recognized at California state competitions. Ran piano sharing online community *Legato Network*.
- Languages: fluent in English and Russian, and advanced in French. Ranked #4 – #8 in the U.S. for French as National Laureate of *Le Grand Concours* (National French Contest, 2010 – 2012).
- Well-traveled: 20 countries in last 10 years. See map at *www.maximz.com/travel/map*.
- Featured in *Business Insider* – "The 25 Most Impressive Kids Graduating from High School This Year" (2013).
- Trained over 100 delegates of Southeast Asian water management agencies in use of state-of-the-art water data management systems to enable international collaboration (Summer 2013).
- References: Clay Bavor (cwb@google.com), Barbara Engelhardt (bee@princeton.edu), Jeff Hammerbacher (hammer@hammerlab.org), Heather Howard (heatherh@princeton.edu), Brian Kernighan (bwk@princeton.edu), Chris Kuenne (ckuenne62@princeton.edu), Shirley Tilghman (smt@princeton.edu), Chris Wiggins (chw2@columbia.edu).