# Ethan Shen

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## EDUCATION

**Stanford University** **Stanford, CA**

*B.S., Computer Science (anticipated)* *2020*

Machine Learning, Probability and Statistics, Natural Language Processing, Programming Abstractions, Computer Organization and Systems, Mathematical Foundations of Computing, Linear Algebra and Multivariable Calculus, Organic Chemistry, Genomic Analysis, Biochemistry

## EXPERIENCE

**Machine Learning Engineer, OccamzRazor** **Palo Alto, CA**

*Python* *10/2017 – Present*

- Working with team of industry-leading PhD's on an AI-driven neuroscience product that uses reinforcement learning to extract information from publications and various other data sources for universal analysis via bioinformatics frameworks
- Project involves researching methods for guiding machine learning agents using information derived from knowledge graphs

**Software Engineer, Yoshi** **San Francisco, CA**

*Ruby on Rails, SQL* *5/2017 – 10/2017*

- Contributed significantly to and worked effectively with a YCombinator-backed startup as part of the core software team
- Responsible for upgrading Yoshi's custom CRM web application with a wide range of new features to optimize operator workflow. Developed a comprehensive integration testing suite. Restructured Yoshi's internal RESTful API and database design.

**Stem Cell Researcher, Stanford Medical School** **Stanford, CA**

*Helms, Longaker Labs* *7/2014 – 10/2017*

- Designed cutting-edge stem cell and tissue regeneration experiments with PhDs and Postdoctoral Scholars, and presented data at conferences
- Established and optimized methods for data analysis of 3D fluorescent confocal images via isosurface, spot-spot, and filament trace rendering
- Projects include: developing a therapeutic for rejuvenating elderly bone regeneration using a stem cell activator, generating a protein-delivery system for targeted genetic recombination *in vivo*, creating a novel craniofacial surgery model to investigate stem cell mechanisms

## PROJECTS

**Machine Learning** **Stanford, CA**

*Classifying Hematopoietic Stem Cells (HSCs) using scRNA sequencing data* *9/2017 - Present*

- Developed and trained classifier models on HSC RNA sequencing dataset to predict whether a cell is young or aged based on gene expression patterns. Retroactively discovered critical gene clusters correlated to stem cell aging using lasso and forward feature selection algorithms.

**Computer Organization and Systems** **Stanford, CA**

*Dynamic memory allocator* *1/2017 - 2/2017*

- Built and optimized a dynamic heap memory allocator in C with utilization and throughput comparable to standard library memory allocators

## ACTIVITIES

**Asia-Pacific Student Entrepreneurship Society (ASES)** **Stanford, CA**

*Bootcamp Team Leader* *9/2016 – Present*

- Iterated through design thinking process to develop *Corbul* with industry mentors, a location-based contact-sharing application

## AWARDS AND PUBLICATIONS

**Awards and Recognitions:**

Siemens Competition for Science, Math, and Technology Finalist (2016) – top 40 science, math, and technology projects in the US
Intel Science Talent Search National Semifinalist (2016) – top students globally in prestigious science competition for high school seniors
Conrad Spirit of Innovation Challenge National Semifinalist (2013) – national innovation and entrepreneurial team competition for global solutions

**Research Articles:**

1. R. C. Ransom, D. J. Hunter, S. Hyman, G. Singh, S. C. Ransom, **E. Z. Shen**, K. C. Perez, M. Gillette, J. Li, B. Liu, J. B. Brunski, and J. A. Helms. "Axin2-expressing Cells Execute Regeneration after Skeletal Injury." Sci. Rep. (2016): 36524; doi:10.1038/srep36524
2. B. Salmon, B. Liu, **E. Z. Shen**, T. Chen, J. Li , M. Gillette, R. Ransom, M. Ezran , C. Johnson , A. Castillo , W. J .Shen , F. Kraemer , A. Smith and J. A. Helms. "WNT-activated bone grafts repair osteonecrotic lesions in aged animals." Sci. Rep. (2017): 14254; doi:10.1038/s41598-017-14395-9.
3. **E. Z. Shen (co-first),** C. P. Blackshear, R. C. Ransom, N. N. Chung, J. S. Flacco, D. Irizarry, S. M. Vistnes, E. A. Brett, M. T. Longaker, and D. C. Wan. "Comparative Three-Dimensional Analysis of Human and Mouse Adipose Tissue." J. Mol. Endocrinol. (in review)
4. R. C. Ransom, A. C. Carter, T. Leavitt, A. Salhotra, O. C. Marecic, M. L. Lopez, Y. Wei, C. D. Marshall, **E. Z. Shen**, M. P. Murphy, A. Sharir, O. D. Klein, C. K. F. Chan, D. C. Wan, H. Y. Chang, M. T. Longaker. "Mechanoresponsive skeletal stem cells acquire developmental neural crest identity during distraction osteogenesis." Nature. (in review)

## SCORES & SKILLS

- HS GPA: 4.45, ACT: 35, AP: 5 in Biology, Calculus BC, Chinese, Computer Science, Chemistry, English Literature
- Proficient in: HTML/CSS, SQL, Python, Ruby on Rails, Java, JavaScript, Typescript, C++, C. Bilingual in Mandarin Chinese.
- Skills: Integration/Unit Testing, Web application development, Database design, Building RESTful APIs