A LOOK BACK AT OUR PAST YEAR:

2017 & 2018
DEAR CS+SOCIAL GOOD COMMUNITY,

2018 marks CS+Social Good’s third year as an official student organization at Stanford, and this past year has been no less exciting than the previous two.

While continuing to support our existing initiatives, we’ve also made significant progress on our larger vision, including building a national network of tech for good university organizations and exploring avenues for institutional change at Stanford.

All of this work is made possible by the incredible community of motivated, thoughtful, and passionate students and faculty who support CS+Social Good and have helped us grow to where we are today.

CS+Social Good has always believed that our classes are one of the best avenues for engaging the student body, since they hold our teaching staff accountable, provide an incentive for students to complete projects, and allow students to obtain course credit for their work.

This past year has been a landmark in terms of the volume and diversity of classes offered. Our two project-based classes, CS50 and CS51/52: Studio, both served more students than they ever have, allowing more students to engage in impactful projects for nonprofits and social ventures.
CS50 is a 1-quarter class offered every Fall and Spring where roughly 30 students work in small teams to implement high-impact projects alongside both local and global partner organizations. These projects cover a wide range of important tasks, from revamping outdated websites for non-profit organizations to creating embedded platforms that emphasize political engagement. Over the course of the quarter, students in CS50 interface directly with their partner organizations, working and adapting on-the-go to rapidly complete the project at hand. At the end of the quarter, students present their work to the public at our CS50 Final Showcase.

In addition, CS50 also hosts a handful of speakers each quarter to come speak to the class, both from industry and academia. Speakers over the past year have included Jim Fruchterman (CEO of Benetech), Sandra Liu Huang (Head of Product at the Chan-Zuckerberg Initiative), Lucy Bernholz (Director of the Digital Civil Society Lab at Stanford), and much more.

FALL 2017 PROJECT PARTNERS:
Stanford Peace Innovation Lab
AEI
CGNet
Swar
CodeNow
Library For All
NALA
One Jump
RSCD Governance/Elected Women Leaders
The Trevor Project

SPRING 2018 PROJECT PARTNERS:
USA for UNHCR/UN Refugee Agency
IssueVoter
The Phoenix Scholars
SMART Politics
Raheem AI
SF Peer Resources
TeenSMART International
Stanford Sustainable Urban Systems Initiative
ABOUT STUDIO (CS 51/52)

CS 51/52 is a 2-quarter program where 7 interdisciplinary teams of students design and implement tech for social good projects with the help of partner non-profit or social venture organizations in the SF/Bay Area and Oakland. Using a human-centered design methodology, teams identify a salient challenge within their organization’s domain, and implement a solution with them. At the end of each quarter, we hosted showcases attended by 60+ people where teams presented their progress on the projects.

OUR 2017-2018 PARTNER ORGANIZATIONS

Mango Health  Divr Edu
Tech/HIRE  IMPACT EXPERIENCE
FREEWILL  PROJECT HOMELESS CONNECT
TeachFX
THIS YEAR'S STUDIO BREAK-DOWN

29 STUDENTS (up from 24 students last year)
1 PhD, 3 Juniors, 12 Sophomores, 11 Frosh

7 PROJECTS (up from 6 projects last year)

10 MENTORS from companies such as Dropbox, Google, Airtable, Branch, Cisco, The Better Lab and Blurb.

Speakers: Founders and influential people of tech nonprofits and companies, e.g. Kiva, Freewill, TeachAIDS, One Concern, Digital Green, etc.

TESTIMONIALS

“If you want real world project experience outside the classroom, and don't have a huge amount of CS experience, don't worry! Take this class - it works on real world problems and does it with a cohort of students who want to do something good with their education.”

“It's a super helpful way to cement your design thinking skills. There's really no replacement for getting out into the community the way you do in this class. You really get to know your team members and your partner non-profit. Plus, the teaching staff is all students, so they are extremely flexible and understanding.”

“This is an awesome class! It is student run, but it is more well-organized than most faculty run classes. You get to work with an great team and fantastic mentors to solve a real problem for a partner organization.”
We also taught CS53SI, a discussions-based class where students were able to have in-depth conversations with influential speakers like Jennifer Pahlka, the founder and executive director of Code for America, and Andrej Karpathy, director of AI at Tesla. In partnership with Student AI Group and for the first time, we offered AI+Social Good, a class that taught students the basics of machine learning and delved into the potential benefits and harms of artificial intelligence. Finally, we taught two quarters of CS106S, our companion class to the 106B/X series.

CS106S: CODING FOR SOCIAL GOOD

COURSE DESCRIPTION
Survey course on applications of fundamental computer science concepts from CS 106B/X to problems in the social good space (such as health, government, education, and environment). Each week consists of in-class activities designed by student groups, local tech companies, and nonprofits. Introduces students to JavaScript and the basics of web development.

TOPICS WE COVERED
- Mental health chatbots
- Tumor classification using machine learning
- Sentiment analysis of tweets on refugees
- Storytelling through virtual reality

CHECK OUT ADDITIONAL TOPICS IN OUR GITHUB:
https://github.com/cs4good/social-good-106-section

FUTURE GOALS
Our main focus for next year will be to increase the number of class topics/projects that we have to choose from and to focus on recruiting more. During spring quarter we enjoyed partnering, for one class, with Students for a Sustainable Stanford on creating material together and we'd love to continue to collaborate with socially minded student groups in creating content for 106S classes.
CS21SI: AI FOR SOCIAL GOOD

ABOUT THE COURSE

Students learn about and apply cutting-edge artificial intelligence techniques to real-world social good spaces (such as healthcare, government, education, and environment). Taught jointly by CS+Social Good and the Stanford AI Group, the aim of the class is to empower students to apply these techniques outside of the classroom. The class focuses on techniques from machine learning and deep learning, including regression, support vector machines (SVMs), neural networks, convolutional neural networks (CNNs), and recurrent neural networks (RNNs). The course alternates between lectures on machine learning theory and discussions with invited speakers, who will challenge students to apply techniques in their social good domains. Students complete weekly coding assignments reinforcing machine learning concepts and applications.

We had 9 students in the class last Spring for our first iteration of the class. Course materials can be found at http://cs21si.stanford.edu

GUEST SPEAKERS

Chris Piech  Sharad Goel  Pranav Rajpurkar  Aarti Bagul  Andrew Critch
Though we are excited about the coursework we’ve offered, we also acknowledge that more is not always better. After noting that CS50 and CS51/52 were becoming similar classes that appealed to very similar students, we decided that it would make the most sense to merge them into one class, combining our teaching staff’s expertise from both classes. With the extra time and energy saved from running two similar classes, we hope to dedicate our resources to creating ways students can sustainably contribute to impactful technical projects over longer periods of time, potentially through the creation of a shared lab/incubator/space on campus. (Let us know if you’re interested in helping out with this! We see this as one of our most important long-term goals, and there’s a lot of work to be done to ensure this is executed properly.)

In addition, we’ve expanded and improved our extracurricular programming. We have 5 summer fellows working on social ventures across the world, and we’ve expanded our educational outreach program from one middle to school to ten high schools, creating a scalable, easily distributed post-AP CS curriculum to introduce tech for good concepts to students before college. This year, we’ve come to appreciate the importance of communicating our work to the public, so we’ve restarted our weekly newsletter and Medium page. Our expansion efforts have now evolved into helping shape TechShift, a national alliance of tech for good organizations on college campuses. In January, we attended for the first-ever national TechShift summit at the University of Chicago, and we left feeling inspired and motivated to continue our work.
This past fall quarter, CS+Social Good ran a research initiative to encourage students to join socially impactful, technical research projects. In the past decade, we’ve seen an explosion of technological tools and methods being applied to nearly every field of research, including the social sciences. Through our needfinding before the school year began, we found that students often wanted to participate in research, but perceive it as inaccessible or lacking in real-world impact. In November, we invited students to connect with a variety of researchers and projects, like Sharad Goel of the Social Computational Policy Lab, Samer Araabi of Accountability Counsel based in San Francisco, Herb Lin of the Center for International Security and Cooperation, Luci Herman, the director of the Law and Policy Lab. After a round of applications, eight students were successfully matched with research opportunities.

Next year, we plan to expand these efforts into a dedicated program on campus for students interested in impactful technical research to be able to find research opportunities and collaborate with other students for sustained, multi-year impact. If you’re interested in participating in the lab or helping get it off the ground, don’t hesitate to reach out at cs4good@cs.stanford.edu!
TechShift began as an experiment back in 2014 through CS+Social Good. Over the following years, we’ve grown in both size and scope with the constant aim of shifting the conversation around technology at Stanford. In 2017, students from Brown University joined with CS+Social Good to launch their own organization, CS for Social Change. From there, the alliance has continued to grow, and hosted its first summit in Chicago in January with more than 30 students from North and South America. CS+Social Good has shared its resources and experience with new college organizations, and we look forward to continuing to build upon our momentum as part of the TechShift alliance!

MEMBER ORGANIZATIONS

- Brown University
- Cornell University
- Georgia Institute of Technology
- The University of North Carolina at Chapel Hill
- Northwestern University
- University of Notre Dame
- Pomona College
- Universidade de São Paulo
- Stanford University
- Wellesley College
ABOUT TEACH CS+SOCIAL GOOD

Teach CS+Social Good is a one week to one-month customizable curriculum for high school students that is designed to be completed after the AP exam. Students have the option to complete a design thinking crash course, code three applications of tech for good and design an original solution using design thinking to a social problem over the course of the program. In the 2016-2017 school year, we piloted the Teach CS+Social Good Program with one high school. This past year we extended it to seven schools, and have set forth an ambitious goal of outsourcing it to over 50 this upcoming school year! Ultimately, we hope to transform pre-collegiate computer science education across the country and instill students with a passion for social good from a young age. To learn more and look at our curriculum, visit: https://teachcsforsocialgood.github.io/

DESIGN THINKING CRASH COURSE

1. Separate lessons on each step of the design thinking process
2. Worksheets, handouts, activities, and timelines/teacher guides for each lesson
3. Connect students with non-profit/government organizations as a step in the design thinking process
4. Develop a well thought out final project

PROJECT EXAMPLES

1. Using machine learning to help diagnose breast cancer
2. Hacking cyberbullying by using natural language processing
3. Creating a mental health support chat system by file reading and matching
GOALS FOR NEXT YEAR

1. Outsource to over 50 schools
2. Create a more accessible, self-sustaining curriculum by refining crash course and coding projects
3. Generate a greater network of non-profit organizations to connect schools/students with
4. Improve website and curriculum integration
5. Expand the team to ~10 members, with 2 members experienced in web design/app

THIS YEAR’S ACHIEVEMENTS

⭐ Extended from just one high school to over 200 kids spread across 7 high schools
⭐ Created a website that links to our Google Drive curriculum for teachers to easily access
⭐ Introduced new coding project (mental health database)
⭐ Improved existing projects to add test code in response to feedback from last year
⭐ With help from old design thinking curriculum, created an entirely new design thinking teaching timeline and documents, as well as final project and community engagement aspect

TESTIMONIALS

“The program was amazing. It was an interesting project, had real meaning, and showed students that they knew more than they thought they did that could affect the real world.”

DAVID HOFFMAN, HIGH SCHOOL TEACHER

“[The program] taught me that there are a lot of ways to help others through technology, and that there is a need for more people to join this movement.”

STUDENT

"To start off, I would say this is a really cool idea that Stanford students came up with and it's great that it's our final project in AP CSA. I would let them know that they should really follow each step just how it's supposed to be so that they do it the right way. For example, my group, especially me, did not realize that understanding the person that we interviewed was extremely important. You cannot jump to conclusions, but just ask questions relating to their feelings and thoughts on a problem they care about."

STUDENT

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While students often refer to Stanford as an idyllic bubble, we have felt that perception change due to national events. With controversies over user privacy and the role of technology in civil society at the forefront of national conversation, the tech community at Stanford has an extraordinary responsibility to ensure that the work we do and products we create are ethical, safe, and value-aligned with society at large. While we are proud of the work we have done so far, it is not a time to be complacent or to rest on past achievements: we must push harder for change, think more deeply about our impact, and translate our conversations into action.

With all this said, a note of gratitude is always in order. Whether you’re a student who’s engaged in our programming, a faculty supporter, or a member of the tech community who supports our mission, your continued support means the world to us. We appreciate all of you deeply, and encourage you to reach out, participate in our initiatives, and provide feedback or ideas. May we all have another year of growth, inspiration, and action!

Sincerely,
The Stanford CS+Social Good Team