Current Problems

- UCLA Computer Science lacks courses offered by other top institutions.
- A lot of students are dissatisfied with quality of some courses.
- Some courses are not offered enough.
- Updating courses is slow due to lack of incentive.
Demographics of people surveyed

Number of responses: 260

Major

Graduation Year

- Computer Science
- Computer Science & Engineering
- Linguistics and Computer Science
- Math and Computation
- Computational and Systems Biology
- Other

- 2020
- 2019
- 2018
- 2017
- 2016
- 2015
- 2014 or earlier
Comparison of UCLA Curriculum with Other Top Universities

- What courses are fairly common amongst the top CS programs in the nation?
- What courses do Alumni wish they had taken given their industry experience?
The top ranked CS universities offer certain undergraduate courses that UCLA lacks

<table>
<thead>
<tr>
<th>Course</th>
<th>Stanford</th>
<th>Carnegie Mellon</th>
<th>Berkeley</th>
<th>MIT</th>
<th>UCLA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine Learning</td>
<td>CS 229</td>
<td>10-601</td>
<td>CS 189</td>
<td>6.036</td>
<td></td>
</tr>
<tr>
<td>Computer Vision</td>
<td>CS 131</td>
<td>16-385</td>
<td></td>
<td>6.801</td>
<td></td>
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<tr>
<td>Human Computer Interaction</td>
<td>CS 147</td>
<td>05-391</td>
<td>CS 160</td>
<td>6.835</td>
<td></td>
</tr>
</tbody>
</table>
From our survey, we see that there is demand at UCLA for these classes.

**CURRICULUM DIFFERENCES**

Over 50% of students who responded to our survey want coursework in Human Computer Interaction, Machine Learning, and Computer Vision.
Alumni, what do you wish you learned at UCLA?

“Wish I had implemented an ML model…”

“More machine learning”

“Machine Learning is a huge part of every system now and needs to be part of the curriculum.”

“Machine learning primers”

90% of the alumni wish they had taken a Machine Learning course at UCLA

What do other institutions like Stanford do?

“The largest class on campus this fall at Stanford was a graduate level [CS 229] machine-learning course covering both statistical and biological approaches, taught by the computer scientist Andrew Ng. More than 760 students enrolled.”

Undergraduate upperclassmen are encouraged to enroll in this course given its relevance in industry.
Human Computer Interaction

Alumni, what do you wish you learned at UCLA?

“Machine learning, Javascript, Embedded systems, Cloud computing, WEB AND MOBILE APP DEV.”

“Explore more mobile specific coursework. Mobile devices of all kinds.”

“Mobile app development is also exploding and would be a huge benefit to graduates.”

What do other institutions like UC Berkeley do?

“In contrast to most of the other CS classes at Berkeley, CS160 does not primarily focus on particular algorithmic techniques or computer technologies. Instead, the focus of the course is on developing a broad set of skills needed for user-centered design. These skills include ideation, needs assessment, communication, rapid prototyping, algorithmic implementation and evaluation.” - User Interface Design Course Description at UC Berkeley

60% of alumni wish they had taken an HCI course at UCLA
UCLA Curriculum Feedback

- Rare courses that alumni found useful
- What courses do we want more often?
- Why are some courses less popular?
These are the courses that alumni said were useful, but are rarely offered

25% of Alumni found CS 132- Compiler Construction useful and 15% of Alumni found CS 133 - Parallel and Distributed Computing useful, but these are offered only once or never during the academic year.

“CS 137A [Prototyping Languages] was possibly the best class I took at UCLA” - Not offered at all anymore

<table>
<thead>
<tr>
<th>Course</th>
<th>Term</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>132 – Compiler Construction</td>
<td>Fall 2017</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>133 – Parallel and Distributed Computing</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Not offered this year</td>
</tr>
</tbody>
</table>
What do Alumni wish they had more of?

- “I wish I gained more knowledge and experience in large scale data processing pipelines ... I think there are several existing and potential courses that cover topics including but not limited to AI/ML/distributed computing that could heavily benefit from a dedicated Hadoop/Mesos cluster.”

- “I think CS133 should be offered more frequently”

- “Parallel computing”

- “I wish we had more classes around distributed systems”

- Maybe a separated "Distributed Systems" course is now warranted, given the emergence of Hadoop, Spark, distributed TensorFlow, etc. and given our faculty (Ameet, Tyson, etc.)

The basis here is that classes such as CS 133 - Parallel and Distributed Computing should be offered more frequently due to its large scale importance in the growing industry.
Questions/Comments?