

2017-18 Proposal to Fill a Full-Time Faculty Position

1. Faculty position being proposed

Full-time faculty position in the Computer Science Department

2. Proposal being made by (list name(s) and title(s))

Dr. Xisheng Fang, Full- time Computer Science Faculty (CS)

Dr. Yong Gao, Full- time Computer Science Faculty (CS)

David Topham, Full- time Computer Science Faculty (CS)

Suporn Chenhansa, Full- time Computer Science Faculty (CS)

3. Summary description of the position

This position is a full-time tenure track faculty position in the Computer Science Department. The CS full-time faculty position requires skills and knowledge in programming, and also in engaging students to actively learn the programming concepts needed for successful academic and professional careers. The demand for programming skills is growing significantly, both in the field of Computer Science itself, and across many different sectors which increasingly rely on programming and computing skills. The position would require expertise or developing expertise in all areas as identified the ADT program, and also effectiveness in working collaboratively with other departments/teams to help address the coding needs of Ohlone students.

In the information and knowledge economies of the 21st century, many major disciplines increasingly depend on information and communications technologies. Computer Science faculty members teach skills and concepts that enable students to successfully pursue many different fields of study that include not just computer science, but also engineering, information technology, biotech, multimedia, business, operations, logistics, and many other disciplines that depend on complex computing applications.

Fulltime faculty take an active lead on portions of Ohlone's Computer Science pathway programs and be responsible for collaboration with industry partners to ensure Ohlone students are learning the skills which meet industry demands. Collaboration with industry partners ensure updated student learning outcomes for CS courses and programs. Full-time faculty use collaborative and innovative teaching strategies to address student needs of different learning styles, different learning disciplines, and different long-term professional goals.

4. Rationale for filling this position: include examples of how this position impacts students, program needs, and college goals.

1. Impact on students

There are currently only 4 full-time faculty members in the Computer Science department where there used to be 6 (2005). This few number of full-time CS faculty severely limits the number of students we can serve. There continues to be a sharp increase in demand for programming classes, due to the Computer Science ADT degree and heightened interest in programming skills across all disciplines and in all ages of learners. For example, the Intro to Programming class (CS-102) has increased from 3 sections to 8 sections (within the last 2 academic years). This CS-102 class is a prerequisite for a number of classes required for CS and ENGI students. The limit on the number of sections being offered for this prerequisite class has grown to depend on instructor availability.

A number of CS 101 sections, an introductory course, continue serve students with basic introduction to computers. The current full-time faculty plan on reinstating this course to General Education eligibility. This is expecting to significantly increase student demand for this specific course.

The hiring of another full time Computer Science faculty is imperative to ensure consistency and preparation for all disciplines that have CS courses as part of the learning plan. More students in CS and in other disciplines would be better served from increase the CS faculty capacity to work develop/update/offer high quality CS and

interdepartmental classes. As programming skill sets cross more and more disciplines, that need becomes even greater. The increase of course sections requires more full-time focus on overall program quality, for example, in the last program review Computer Science faculty stated;

“We recognize that we have an opportunity to reach out to other disciplines in the college to demonstrate the relevance of CS and to find ways to collaborate; however, with the current number of faculty members we have, it is difficult to find the time to do this with the increase in teaching loads. This type of collaboration is difficult to accomplish with mostly adjunct faculty.” There also needs to be a definite focus on student team-project collaboration. Another area Computer Science had planned but have so far failed to implement is *“to collaborate with Ohlone’s Work Experience program (WEX) which grants academic credit to students who intern at local companies.”*

Specifically, current inter-department student needs have motivated current full-time CS faculty to explore developing specialized introduction to programming sections to meet the needs of students in the Ohlone Math Gateway program (in current discussion with faculty Jeff O’Connell (Math) and Rose-Margaret Itua (ENGI)), and the students in MultiMedia (in current discussion with Isabel Reichert (MM)).

Adjunct faculty are a valuable resource that we utilize. However, due to hourly constraints, adjunct faculty are not able to adequately offer office hours that meet our students’ needs, and thus, potentially, impact our students’ success.

2. Program needs

As mentioned previously, the demand for CS courses combines students studying CS and students studying other disciplines. This position requires that the full-time faculty teach (or develop the ability to teach) most of the ADT required courses, the transfer courses (lower division) for students intending on earning a 4-yr degree whether in CS or in another major, and specific skill courses (upper division) needed to enhance employment opportunities.

Most importantly, the full-time faculty need to continue to update the Computer Science program and associated compliance paperwork, to keep up with industry and academic trends. Faculty are the key liaison to industry and educational trends, and seeing as Ohlone is strategically positioned in the heart of Silicon Valley, Ohlone faculty have the capability to develop this industry intimate knowledge and apply it to develop excellent courses for our students.

Labor market trends also show that there is a current demand for Computer Science majors, which will only grow as more and more industry users require computer programming and emerging technology skill sets. Business conducted today also requires higher-level computer science skills. For example, in Accounting there is a trend toward using BIG DATA for forecast analysis. Job advertisements are requiring more analytical and critical thinking skills. Ohlone needs to respond to that need. (See data table at end of document).

3. College goals.

Increasing the capacity of the CS Department with an additional full-time instructor program addresses College Goals #1, #2 and #4.

Goal 1: Through innovative programs and services, improve student learning and achievement.

The new faculty will focus on improving our program to take advantage of current developments in education to meet this goal and teaching needs. This includes increasing the capacity to meet growing student needs, industry needs, and other departments’ needs to have programming skills be available to their students.)

Goal 2: Provide relevant sustainable Career and Technical Education (CTE) that is responsive to student needs, supports student academic success, and prepares students to meet industry needs.

The new faculty will increase the efficiency of collaborating closely with Computer Networking and Emerging Technologies (CNET), ENGI, and Multimedia (MM) departments. Increase collaborations with these

departments, and other future collaborations with additional departments would be more possibly with additional faculty.

Goal 4: Create an understanding of, and commitment to, equity across the college that ensures access and success for underrepresented and disproportionately impacted students.

The new faculty member will concentrate on bringing the opportunities of *STEM* courses to underrepresented groups through outreach, collaboration with the different learning communities (such as OMG) on campus, and collaboration with other disciplines to help make the programming skillset more accessible to all students.

5. Are there any externally imposed requirements such as a specialized program accreditation that would put this program in jeopardy if a full time position is not filled? If so, please explain.

No.

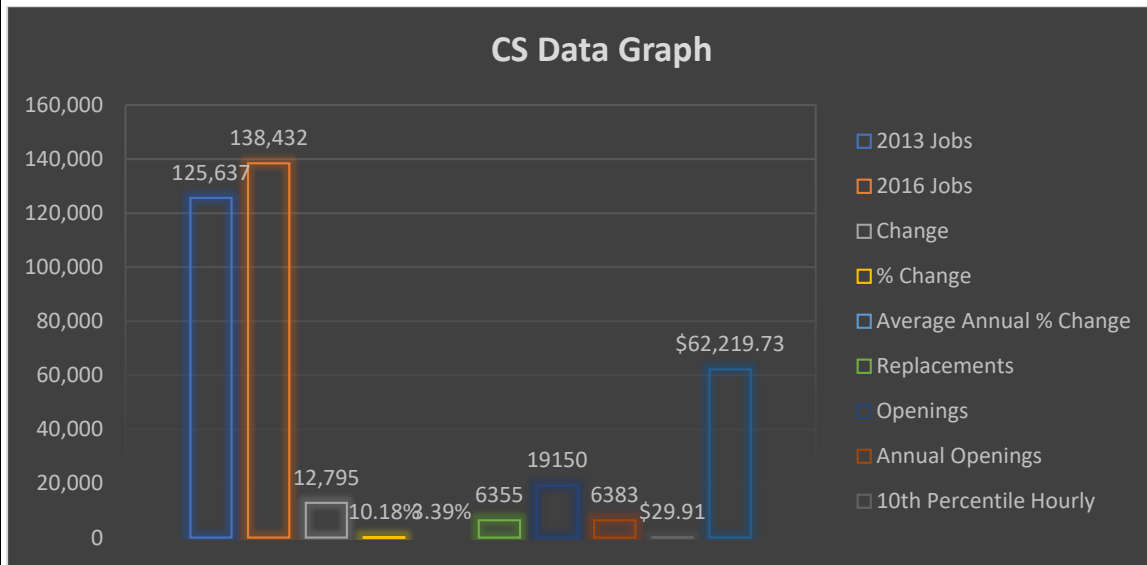
6. Other information to support the position proposal (include qualitative data if applicable).

As stated above, more and more disciplines are discovering the need of the Computer Science skill sets. Ohlone must respond to that. With the advent of many emerging technologies, such as the Internet of Things (IOT), Big Data, the Maker Movement, and growing variety of programmable general use tools and objects, we cannot miss this opportunity. Computer Science is becoming more like the core course demands of Math and English. Students need to know and understand computers and technology, no matter their field of study. The current full-time faculty of CS also plans on submitting CS 101 to be reinstated at a General Education course. This is expected to cause an increase in demand for this introductory course.

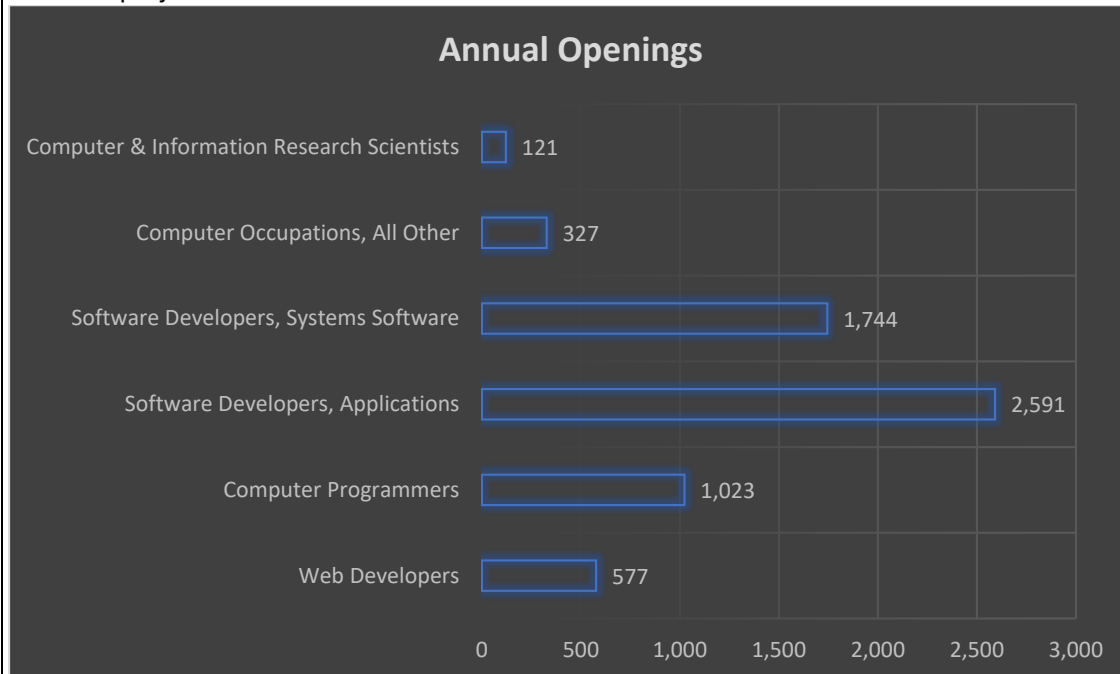
A partnership with the OMG program is also planned in collaboration with the Math and ENGI departments. A pilot cohort section of CS 102 is scheduled for Spring 2018. Discussions with the MultiMedia (MM) department have started exploring specialized programming sections for MM students.

Also with the continued demand in job growth and more specialized skills, we anticipate that businesses will require a need for enhanced computer skills. Ohlone must be able to accommodate this need, particularly as we continue to partner with Bay Area businesses.

Here is evidence that the job market demands these skillsets:



of Jobs projected



Total Bay Area- 2014-15



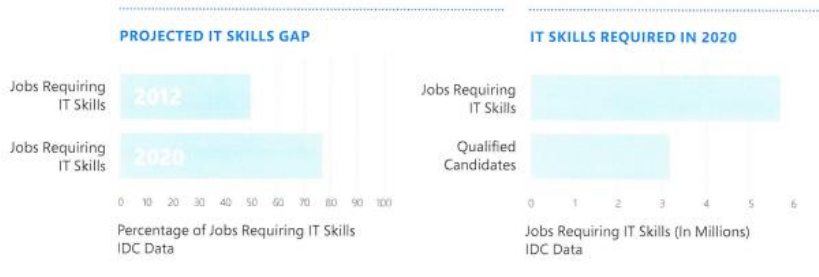
At the end of each year, LinkedIn publishes an annual analysis of the top 10 skills in demand by employers. The list below shows the top demand skills of 2016. Most of these skillsets would require a foundation in programming which would include the skills covered in CS 102, CS 116, and CS 124.

The remaining questions to be completed by the Division Dean

7. A statement by the dean of the division housing this position, which includes data, evidence, and

analysis. **Include all relevant information you would like the committee to consider.**

The Computer Science department has been very successful in implementing its ADT degree and its faculty are the key liaison to industry and educational trends. Ohlone College is strategically positioned in the heart of Silicon Valley, so we owe it to our students and community to live up to these expectations. Labor market trends also show that there is even more demand for CS graduates, which will only grow as more and more industry users and non-technical jobs require computer and emerging technology skill sets. See chart below (based on IDC Data).



. (See data from above question to support this).

8. Is the position part of a Career Technical Education (CTE) Program? ___Yes ___X___No

QUANTATIVE DATA SUMMARY: (Refer to datasheet provided by the Research and Planning Office)

9. What is the department FTES? (Data is available on the Program Review data sheet – [Academic Affairs website.](#))

Fall 2016 119.28 Spring 2017 141.21

10. What is the ratio of full-time to part-time faculty in the department?

60:40

11. What is the ratio of FTES by Adjuncts?

60:40 (per Mike Bowman's instructions to provide same answer as previous question)

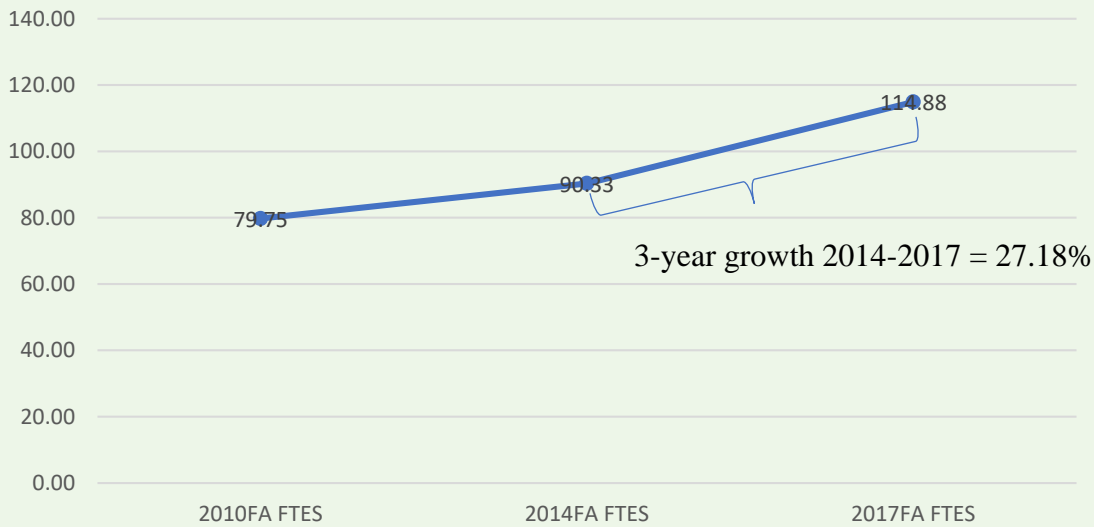
12. What is the current WSCH/FTEF in the department?

539

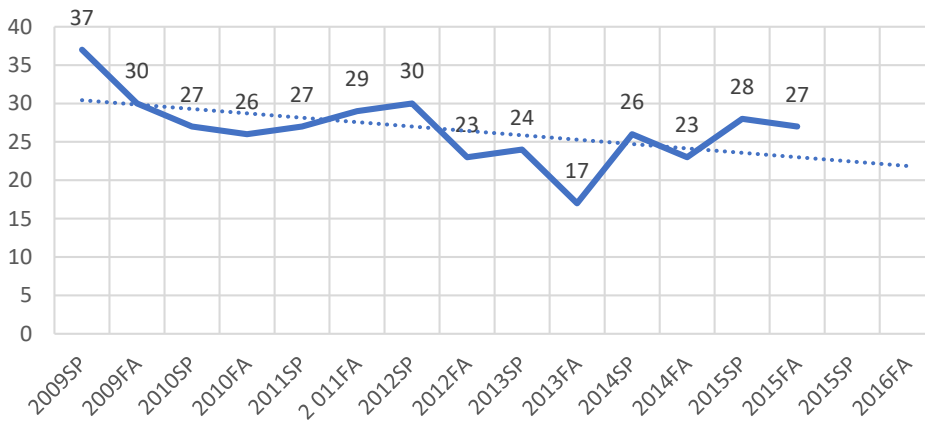
13. Does the position address an area of growth? If yes, include a five year trend line for FTES.

Yes. The recent 3-years show a growth of 27.18% in FTES.

CS FTES Trend



CS-Sections Each Semester



- Source for all data was from
 - Bureau of Labor Statistics <http://www.bls.gov>
 - BACCC <http://www.baccc.net>
 - IDC Data Group <https://www.idc.com/about/about.jsp>
 - Ohlone College Colleague database/Research & Planning website. <http://www.ohlone.edu/org/research/>
 - Faculty Position Planning Data as provided by the Faculty Senate
 - LinkedIn Blog <https://blog.linkedin.com/2016/10/20/top-skills-2016-week-of-learning-linkedin>