Sample 1

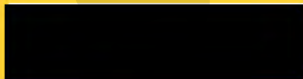**BYU COMPUTER SCIENCE DEPARTMENT**

Faculty Development Plan

Mentor

Faculty Development Plan

Assistant Professor
Department of Computer Science
Brigham Young University

1. Self-Assessment

New employment brings both opportunities for growth and the chance to leverage past experience. At Brigham Young University, I will build upon the following strengths, skills, and competencies:

Academic excellence and attention to detail
I am good at exceeding expectations, meeting deadlines, and tracking the myriad details of complex projects. This is reflected in my past academic record.

Ability to work independently
I have worked for many years in a freelance/ entrepreneurial capacity. I am used to setting my own schedule, defining my own goals, and load balancing between multiple projects, family, and church obligations.

Strength of vision
I think big, and believe in my ideas. Where others focus on reasons why plans may fail, I step forward in faith, confident that obstacles can be overcome. (Happily, I also know how to let go of an idea whose time has passed.)

Advanced writing skills
While many people hate writing papers, it's one of my favorite aspects of research. I have written both

academically and informally, and have accrued a sizable portfolio of literary awards and peer-reviewed publications.

Natural tendency toward collaboration
I like people, and I enjoy finding niches where my work can complement theirs. This has led to several interdisciplinary research projects, whose outcomes I eagerly await.

Paired with these strengths, I also see areas for improvement, which I hope to address in the coming years:

Academic rigor
I research and have published peer-reviewed publications in a highly technical field which prizes not only rigorous research methods but also formal analyses and proofs. In the coming years, I seek to increase my skills in these types of formal investigations, in order to complement what I view as my strengths in experiment design and empirical methods. Efforts in this direction might include independent study in the areas of advanced linear algebra, signal processing, probability theory, and computation theory.

NSF track record and large-scale funding
While academic publishing is familiar to me, the process of acquiring external funding is new. I do not currently have a track record with NSF, DARPA, or any of the other large governmental funding agencies, which makes the task of creating compelling proposals even more difficult. During the next year, I hope to learn via active collaborations with senior faculty how grant proposals can be most effectively written and, if funded, executed. My long-term goal is to become qualified to receive and leverage large-scale

academic grants in order to advance my field and improve the educational experiences of my RAs.

In all aspects relating to my professional and spiritual growth at BYU, I will strive to follow the excellent advice provided by Albert Einstein:

"Try not to become a [person] of success, but try to become a [person] of value."

2. Professional Goals

During my time at BYU, I hope to advance my skills in the key areas of citizenship, teaching, and scholarship. Specific objectives are outlined below.

Citizenship

In the area of Citizenship, I have chosen two goals which will help me serve and strengthen my community while also contributing to eventual rank and status assessments. Goal 1: Submit at least three academic papers in collaboration with a faculty colleague outside of my Department. Goal 2: Volunteer my time at least twice per year to review academic papers at top-tier conferences and/or to review NSF grant proposals.

Teaching

For my Teaching Development Project, I will focus on a course designed to facilitate research mentoring at scale for undergraduate students. The BYU Computer Science Department seeks to provide mentored research and experiential learning opportunities to all interested undergraduates, but our faculty-to-student ratio makes it difficult to do this using a one-on-one mentoring paradigm. I therefore propose to teach a course titled "Undergraduate Research in Machine Learning" that allows students to participate as research assistants in an active research

project with strong publication potential. The goal is for students to acquire critical research skills, become familiar with the common failure modes of research activities, and obtain hands on research experience with language models, deep learning, and conversational AI.

Scholarship

Thematically, my research circles around two core principles: (a) The improvement of machine learning methods to improve controllability, explainability, user-specific personalization, and generative coherence, (b) The application of machine learning methods in the domain of socially intelligent dialog systems and conversational AI.

These themes are inherently complementary, as meaningful improvements in conversational AI require novel and innovative machine learning methods. Conversely, controllable and explainable machine learning methods lend themselves naturally to a conversational framework, and personalization is an intrinsic requirement of long-term, natural-feeling conversational interactions.

This line of research requires not only theoretical innovation but also empirical validation. Accordingly, my high-level strategy will involve the development of a large-scale, real-time conversational AI system with interchangeable modules that can be examined, enhanced, and evaluated in a test framework using research volunteers under an appropriate IRB.

3. Department and University Needs

I consider my goals to be compatible with and complementary toward University and Department needs.

With respect to teaching, the Computer Science department is actively seeking ways to provide mentoring and experiential learning opportunities for students. The proposed 401R course will help to satisfy these needs, and will also support the University's stated goals to provide students with experiential learning.

In terms of citizenship, my goal to pursue collaborative research with professors outside my department will enhance my own research and support BYU's efforts to foster interdisciplinary and multidisciplinary research. Department goals will also be served, as these activities will help me to fulfill Department expectations regarding scholarly work and active publication at impactful venues.

In a similar way, my scholarship goals are compatible with BYU's emphasis on academic excellence and lifelong learning. The research direction I have chosen lends itself well to sustained investigation across a wide variety of subdisciplines, with opportunities for student involvement

and extensive assistance from undergraduates. There are also opportunities to incorporate aspects of this research into targeted courses within our core curriculum, thus providing students with hands-on experiential learning as part of their degree.

4. Resources Needed

Most of the resources needed to achieve my goals have already been provided by the Department and/or the University. My work requires space for a research lab (provided by the Department), funding for graduate and undergraduate RAs (provided by the Department and by a University FAST Grant), computational infrastructure (provided by Department funds and by a University FAST Grant), and sufficient time to guide and mentor the students who will complete the core research (current Department expectations allow this.)

Long term, I will need additional funding as I seek to scale my research to produce high-quality results with genuine human impact. I hope to acquire this via external grants from corporate partnerships, government funding agencies, and other donors.

5. Activities and Accomplishments

To date, I have achieved the following milestones with respect to my goals.

Citizenship

(a) Entered into active collaborations with six professors outside of my department: Dr. ▮▮▮▮▮ (Math), Dr. Grant Schultz (Engineering), Dr. ▮▮▮▮▮ (Psychology), Dr. ▮▮▮▮ (Political Science), Dr. ▮▮▮▮ (Political Science), and Dr. ▮▮▮ (Political Science)

(b) From these collaborations, I currently have one academic paper under consideration at Science Advances, three papers in the planning/research stages, one funded grant proposal (NSF EAGER), and one grant proposal in progress (Sony Research Awards)

(c) I have provided peer reviews in 2020 for NSF SBIR and reviewed paper submissions in 2021 for ACL-IJCNLP and for EMNLP

Teaching

(a) I have pilot-taught this course as part of a spring term project using 8 students and two graduate TAs.

(b) I have obtained departmental permission to teach the course a second time with more students, with a long-term goal of assigning it a permanent course number.

Scholarship

(a) Obtained a University FAST grant to support the creation of a large-scale, real-time conversational AI system with diverse machine learning modules.

(b) Entered into funded partnership with Latitude, Inc. to explore ways to improve controllability and continuity in the GPT-3 language model.

(c) Established a student Taskforce focused on the development of socially intelligent conversational AI systems. The group currently meets once per week to discuss recent publications of relevance to the work.

(d) Entered into a collaboration with several Political Science professors to probe the capacities and limitations of the GPT-3 language model (NSF EAGER grant received).

(e) Entered into a collaboration with other professors to explore situationally grounded methods for personalization in a conversational framework (DARPA CCU grant in submission).

(f) Have published 10 academic research papers in mid- to top-tier conferences related to natural language processing, deep generative language models, and conversational AI.

Sample 2

Faculty Development Plan

Scholarship

My Program of Scholarship: I work in the field of Human-Computer Interaction and study how we can balance connection and privacy when our relationships and interactions are mediated through technologies. I study social technologies including social media, smart phones, internet of things, and other technologies that connect people. My work focuses on developing an end-to-end understanding of people's needs and concerns, the technologies they use or avoid and why, as well as designing solutions and evaluating them in the field.

Self-Assessment: I have strong publication record in this area, confirmed by feedback from senior colleagues in my department, however I need to show that I can continue to produce while at BYU and with BYU students. Furthermore, the number of projects and publications that I can produce have been limited by my own bandwidth at my prior institution. Now that I'm at an institution that emphasizes student research and mentorship, I would like to develop student scholars who can lead projects and publish, preparing them for a future as successful researchers.

Related to this is obtaining funding for research. I have obtained some funding so that I can have a good size research lab (10 college-funded undergrads, and funds to hire more students both grad and undergrad). As a result, I now have around twenty students in my lab working on 8 different projects. However, having more funding for grad students will require more external funding. Thus, another area for improvement is obtaining funding so that I can support more research and students. Since my previous institution did not emphasis funding, I've only had a couple years experience grant-writing and have room to improve.

Goals: In following with my areas for improvement, I have the following two goals to achieve by Dec. 31.

Goal 1: Getting students to lead and take a major role in research and publish in top venues.

Measurable outcome: Submit 3 full papers to top conferences/journals with student co-authors in 2021.

Steps/Resources Needed:
1. Have 3 project teams with student researchers each complete a study and write and submit manuscripts to top conferences/journals.

2. Have my grad students take advance statistics classes that will prepare them to continue to carry out further research next year.

Progress to date:
- One project team has completed and submitted a manuscript under review to CSCW, a top journal.
- Two project teams have finished analysis and are finishing their manuscripts for submission to CHI in September, a top conference.
- Two of my grad students have enrolled in the psychology 2 semester statistics series to be able to learn general linear modeling, structural equation modeling and factor analysis.

Goal 2: Submit at least 3 grant proposals a year.

Measurable outcome: Submit 3 grants in 2021.

Steps/Resources Needed:
1. Identify funding opportunities that are a good fit for my research projects in need of funding.
2. Draft proposals and enlist colleagues with relevant expertise.
3. Work with Research Development office to get feedback and get assistance preparing the applications.

Progress to date:
- 2 grant proposals submitted (1 Darpa, 1 non-profit organization)
- Working towards submission of a third due Oct 1.

Citizenship

Self-Assessment: I am very active in professional citizenship and networking with faculty from various institutions, often collaborating on research. However, being new to BYU, my goal is to nurture relationships here and to help further the unity of the department.

Goals: In following with my areas for improvement, I have the following two goals to achieve by Dec. 31.

Goal 1: Developing a stronger comradery for grad students/faculty, stronger research culture and intermixing with other universities.

Measurable Outcome: Create and carry out a revitalized and formalized seminar series that works towards these goals.

Steps/Resources Needed:
1. Write a proposal for a seminar series that includes external speakers, internal speakers, professional development workshops, and other activities related to research
2. Get department approval to run the series
3. Recruit speakers and faculty to be involved in the series, as well as encourage student interest

Progress to date:
- Chris and I created a new colloquium and worked with faculty to refine and get it approved.
- In process of recruiting speakers and setting agenda

Goal 2: Collaborate on research with faculty in the department.

Measurable Outcome: Work with a new BYU faculty member that I have not worked with before 2021 on research collaborations (that work towards publication).

Steps/Resources Needed:
1. Get to know other faculty and possible overlap
2. Work with faculty on projects, setting up regular meetings

Progress to date:
- Brought in and collaborating with a health crisis scholar into a project for covid tracing app adoption.
- Initial work to launch a new project around identifying extremist posts on facebook and their hashtag identifiers. Working with a CS faculty member with machine learning expertise.

Teaching

*Self-Assessment***:** I taught two courses for the first time last year. I developed almost all new materials and lectures for cs356, including using a new textbook and readings. I developed new exams in a format that could be taken online. My student evaluations came out at the same as historical averages for cs356. I also taught cs142 and received scores at or above averages for this course. I also created new slides to teach that class.

Course to be evaluated: CS356 is an introduction to designing for the user experience. Advanced Computer Science students take the course to go beyond creating technology that is functional and scalable to making sure it is useful and usable for the users.

Goals: I will evaluate these metrics and aim to improve on them the second time I teach the course.

1. Student evaluations of teaching delivery, course organization, content quality, and overall satisfaction with the course.

Syllubus:

Summary

This is a class about designing the user experience with an emphasis on iterative user-centered design. A technically well-designed product can still fail if it does not satisfy user needs or is difficult to use. We will focus on learning tools and techniques for understanding users and implementing functional prototypes as part of our design process. The ability to take an idea and quickly turn it into working code is a superpower possessed by UX-trained CS students. Our goal is for you to obtain that superpower. Lecture notes and recorded lectures will be available online here (Links to an external site.) (this is for classroom use only - please do not share this link). Several pages here on canvas give other details.

Course Text

We will be using User Experience Re-Mastered, you should be able to use the following link to view a digital copy via HBLL

User Experience Re-Mastered (Links to an external site.)

Class Meetings

This class meets Tuesday and Thursday from 9:30am-10:50am on the following zoom link:

https://byu.zoom.us/j/94966307403?pwd=dWJaZnU3NVlueVVQWDl4Z0x4YVdadz09 (Links to an external site.)

I expect this to be an interactive class and want us all to see each other and get to know one another. Being able to see nonverbal cues and feedback from your classmates is essential to gauging whether others agree, understand, and how they feel about the designs you will be presenting. Thus, I am asking that you turn your cameras on. I understand there may be extenuating circumstances, so it may be that your camera is on 9 out of 10 times. And I understand that some of you are working under challenging arrangements (e.g., you are on child duty and so have to multi-task). Babies on camera and kids in the background will just be part of the experience, and of course occasionally running off to clean up a spill or prevent a fight :D However, for your

benefit, I really do want you to be able to focus on the class since much of the value of the class comes from interacting with your fellow classmates and learning through that interaction.

You will often break out into small sessions and discuss questions in groups with a TA as moderator. In these sessions, cameras AND microphones should be on so that you can all participate. We are simulating as much of the in-person experience as possible and discussion and interactivity are important.

Grading

We will grade your final prototypes for both the web site design and mobile app projects. Grading is a little different in 356. See the guide to grading for details. There will also be a midterm and a final. A small portion of your grade will also consist of a participation grade determined by your participation in class exercises and team meetings.

As your projects progress, you will turn in intermediate work to receive feedback from the class. Intermediate work will receive credit for completion rather than a letter grade. However, the more you invest in the intermediate milestones, the more meaningful feedback you will receive and the better you will be able to justify and support your design decisions for the final project. Showing that your design is usable and useful is an important aspect of your final project.

The final project brings user experience together with implementation. Failure to use a physical device when testing your mobile project or failure to write a native app for the mobile project will each result in dropping your project grade by one letter grade.

Projects

We'll have two major projects. One involving the desktop computing context and one involving the mobile computing context. For the desktop context, you will work in teams of 2-3 on a common problem, creating a website. For the mobile project, you'll select, study, and imagine solutions to a problem you care about. You can choose to work alone or with a partner. This is a chance to do something that matters to people and that you are passionate about. For each project you'll build a series of prototypes with increasing fidelity in both appearance and functionality. You'll conduct evaluations of these prototypes along the way.

Late work

You will turn in pieces of intermediate work for your project as we go. We will only grade the final project as described above. However, TURNING IN INTERMEDIATE WORK LATE will cost 3% PER DAY from the FINAL PROJECT GRADE (every day except Sunday counts as a late day. If Saturday is a religious holiday for you then Sunday will count as a late day) with a cap at 40% off. The purpose of this policy is to help you not get behind on your project.

The artifact you turn in for intermediate work should clearly be a meaningful attempt to complete the assignment. If you turn in a few sentences or a smiley face for intermediate work, that will not count.

Final projects are accepted late with a penalty of 10% per day with a total combined late penalty cap of 60%. (So you can get upto 40% off (39% really) with late days on project pieces and then another 20% off if the final project is late).

Feedback

In addition to the feedback you receive in class, you may request additional individualized feedback on the **most recently submitted piece** of your project at any time. You can request that feedback by email, slack, during office hours, or any other way. We think this opt-in feedback policy will help us focus our effort where it is needed most rather than generating a ton of feedback on everything.

Office Hours

TA's will be available on Slack and via Zoom during their office hours. Here (Links to an external site.) is the google spreadsheet for the TA office hours. During off hours, feel free to leave a message on Slack where the first available TA will be able to help you. Also, here is a list of their technology expertise.

While TA's will be a primary resource for support in this class, I am also available via email (▮▮▮▮cs.byu.edu) and zoom. I am also always happy to chat about other non-class-related questions such as types of UX jobs, working in academia vs. industry, balancing work-family-personal life, etc.

Slack Channel

Click the link to join the class Slack channel where there are open discussions of projects, technologies, and questions you may have. This is also a good place to leave questions for the TAs to answer when you are unable to attend their office hours. (Slack Link)

Appeals

You can appeal a grade within 7 school days of when the grade was posted. Appeal in writing by email or on slack.

Exceptions

It's better to work this out ahead of time than after--except in emergency situations. Our goal will be to be fair and accommodating where we can.

Diversity and Inclusion in the Classroom

"Because we feel the depth of God's love for His children, we care deeply about every child of God, regardless of age, personal circumstances, gender, sexual orientation, or other unique challenges" (President Russell M. Nelson, "The Love and Laws of God," September 2019). As a university community we strive to foster an educational environment that promotes the personal dignity of every student and accept individual responsibility to eliminate racism, sexism, and nationalism. Our course participation reflects our understanding that every individual is a child of Heavenly Parents. We create learning environments in which every individual is motivated to express their opinions and perspectives and ask questions to augment discussions and learning. We listen to, learn from, and strive to consider thoughtfully the opinions of others. We use language that is polite, considerate, and courteous—even when we strongly disagree.

Schedule

Below is the tentative schedule for the semester - things may be shifted around as we go along so check back often to make sure you are updated on the dates. After the first week, the midterm and final exam dates will NOT change.

Course Summary:

Date	Details
Tue Aug 31, 2021	Calendar Event In class: What is UX and why is it important?
Thu Sep 2, 2021	Calendar Event Read UXR ch 1,2 before class
	Calendar Event To help with your homework: interview guidelines and sample protocol
	Calendar Event In class: Talking to stakeholders
Tue Sep 7, 2021	Calendar Event Talking with the stakeholders
	Assignment Due: Explore my.byu.edu and prepare questions for interviewing stakeholde
Thu Sep 9, 2021	Calendar Event Read UXR ch 4,5 before class
	Calendar Event In class: Team formation, ideation and sketches. Critiques.
	Assignment Due: my.byu.edu problem statements

Date	Details
	Calendar Event Read UXR ch 3 (card sort) before class
Tue Sep 14, 2021	Calendar Event In class: critique concepts. Card sort intro.
	Assignment Due: my.byu.edu storyboard
Thu Sep 16, 2021	Calendar Event In class: paper prototyping intro
	Calendar Event Before class: Read/Watch "paper prototyping" resources
	Calendar Event In class: human perception and layout.
Tue Sep 21, 2021	Calendar Event Read UXR ch 8 website design before class
	Calendar Event In class: paper prototype evaluation
	Assignment Due: my.byu.edu paper prototype
	Calendar Event Dr. ███ away at FPF advisory board meeting
Thu Sep 23, 2021	Calendar Event In class: TA's leading introduction to prototyping tools
	Assignment User Evaluation of Paper Prototype mybyu
Tue Sep 28, 2021	Calendar Event in class: usability metrics and design patterns overview
	Calendar Event Due: User evaluations of prototype
Thu Sep 30, 2021	Calendar Event In class: prototype evaluations
	Assignment Due: my.byu.edu prototype
Tue Oct 5, 2021	Calendar Event In class: Second iteration of prototype due

Date	Details
	Assignment second prototype
Wed Oct 6, 2021	Assignment Due: my.byu.edu final project.
Thu Oct 7, 2021	Calendar Event In class: Presentation of final prototype to Shark Tank
Tue Oct 12, 2021	Calendar Event Read before class: Designing Interactions Excerpts
	Calendar Event In class: Final project presentations and transition to mobile.
Thu Oct 14, 2021	Calendar Event Problem statement for final project
	Calendar Event Read 05-09 pdfs from reading folder and UXR ch 7 prototypes before cl
	Calendar Event In class: Moving beyond the desktop, Mobile app development tools
Tue Oct 19, 2021	Calendar Event Read UXR ch 6 personas before class
	Calendar Event In class: personnas and user goals.
	Assignment Project ideation
Thu Oct 21, 2021	Calendar Event desktop v. mobile design patterns. review for midterm
	Assignment Due: personas
Tue Oct 26, 2021	Assignment Midterm (during class)
Wed Oct 27, 2021	Assignment Due: mobile wireframes
Thu Oct 28, 2021	Calendar Event in class: Usability testing & review some wireframes.
	Calendar Event Read UXR ch 9,10 usability testing before class

Date	Details
	Assignment Midterm
Fri Oct 29, 2021	Calendar Event start coding!
Tue Nov 2, 2021	Calendar Event In class: Usability testing continued
Thu Nov 4, 2021	Calendar Event Read UXR ch 11 results analysis before class
	Assignment Due in class: Be prepared to present full color mockups
Tue Nov 9, 2021	Calendar Event Course Event
	Calendar Event in class: performing expert evaluations, universal design principles
Thu Nov 11, 2021	Calendar Event in class: evaluate first prototypes
Tue Nov 16, 2021	Calendar Event In class: Three levels of emotional design
	Assignment Due: first prototypes including evaluations
Thu Nov 18, 2021	Calendar Event In class: Universal principles of design - testing your skills
	Calendar Event review some prototypes and user test plans in class.
	Assignment Due: User Testing Plan
Tue Nov 23, 2021	Calendar Event No class: viritual Friday at BYU
Thu Nov 25, 2021	Calendar Event No class: Thanksgiving
Tue Nov 30, 2021	Assignment Due: user study on second prototype
Thu Dec 2, 2021	Calendar Event In class: How to start a career in UX

Date	Details
Fri Dec 3, 2021	Assignment Due: Second prototype
Tue Dec 7, 2021	Calendar Event exam review
	Calendar Event In class: how to give a demo
Thu Dec 9, 2021	Calendar Event Final exam (during class) Last day of classes.
	Assignment Attending final exam
Fri Dec 10, 2021	Assignment Final project due
Sat Dec 11, 2021	Assignment Final presentations (during class)
	Assignment Coming to final presentations on time
Thu Dec 16, 2021	Assignment Final exam
	Assignment Due: problem statements
	Assignment Presenting first prototype in class
	Assignment Quiz on 10/13 readings
	Assignment Spot check attendance (first half of semester)