**2013-2014 UC Berkeley Master of Engineering**

**Capstone Project Proposal**

**Overview:**

The Capstone Project, a 5-unit Maser of Engineering course requirement, integrates core leadership coursework with a student’s engineering concentration. Capstone Project teams range from three to ﬁve students, drawn from the cross-disciplinary engineering cohort, to apply diverse knowledge and skills to actual industry problems, identiﬁed by faculty or industry partners. The Fung Institute for Engineering Leadership within the College of Engineering provides capstone cohort support and curriculum integration.

**Capstone Sponsor Information:**

Please read the following instructions and requirements before submitting your proposal. In order to be considered, this document must be completed in full. By submitting this proposal, you agree to its inclusion in the *UC Berkeley Master of Engineering Capstone Project Portfolio* for the 2013-14 Academic Year. Use of links, diagrams and images to illustrate your project is encouraged. Example projects can be found here: <http://funginstitute.berkeley.edu/programs/capstone-projects>

**Timeline for submission and important deadlines:**

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| --- | --- | --- |
| **Year** | **Dates** | **Activity** |
| **2013** | **March** | **Capstone Project Call for Proposals** |
|  | **By April 1** | Submit a one-sentence description of your project idea. |
|  | **By May 1** | **Full Project Proposals due**  Please use the proposal form supplied. |
|  | **May-July** | **Proposal Review –** screening for skill set and objective fit with incoming M.Eng. class**.** |
|  | **July-August** | **Student Project Exploration**  Industry advisors should be available for questions and interview screening of students during this time. |
|  | **August 12-31** | **Capstone Team Selection Process, Sponsor and Faculty office hours** |
|  | **September 1-12** | **Capstone Final Match:** Notification no later than Sept 12 |
|  | **Early December** | **Fall Student Poster Session** |
| **2014** | **Early May** | **Spring Student Poster Session** |
|  | **May 1-17** | **Final Student Presentations and Deliverables** to Industry & Faculty Advisors |

If selected for the 2013-2014 Capstone Project Portfolio you will be responsible for sponsoring and adhering to the terms you outline below. **As the Capstone Sponsor, please *initial* the following requirements by which you are agreeing to the following:**

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TC Provide a point person from your organization to advise the capstone team on a regular basis and throughout the whole duration of the project

TC Supply all necessary tools, software, and/or data necessary to do the project in a timely manner

TC Ensure the project has achievable deliverables that fit into a 9-month timeframe

TC Provide clear objectives for both the technical and business-related challenges of the

project

By signing below you are indicating that you completed this form to the best of your knowledge and are agreeing to all the requirements of UC Berkeley’s Capstone Project Program as listed above.

We look forward to working with you!

Name: Tony Chang Title: Mr.

Email: tony.chang@berkeley.edu Phone: 650.944.5193

Signature or Initials: TC

Date: 04/26/2013

*Questions?* Contact Beth Hoch hoch@berkeley.edu or 510-664-4587

**Proposal Form (please complete all sections):**

|  |  |
| --- | --- |
| **Project Title** | Methods for capturing and analyzing data from paper receipts |
| **Industry Partner**  Company Name, Department, and Website | Intuit, Technology Innovation Group, www.intuit.com |
| **Problem**  (Describe the industry problem your project addresses in 100 words or less.) | Despite the prevalence of electronic data transmitted and stored through the web, there remains a huge amount data stranded on the traditional medium of paper. The largest of these are paper receipts from transactions. Being able to analyze these line item details on receipts will allow personal finance software to really help consumers save money and improve their financial lives on a day to day basis. However, it will be a while before any form of electronic receipt becomes a standard medium so until then, how can we liberate the data from this physical medium in a robust, scalable and adaptable way while maintaining a delightful user experience. |
| **Technical Challenge**  (Highlight the technical challenge of the problem in 100 words or less) | Although technologies such as OCR (Optical Character Recognition) are becoming commonplace in various environments, it remains difficult to extract meaningful data from a physical medium when there are no strict formats (receipts from two places can be very different) and when the quality of the capture is dependent on the user, the lighting conditions and much more. How can we design a system that is robust enough so that any user can easily and reliably transform data from a physical medium to the cloud? |
| **Objective**  (In 100 words or less, use bullet format and ensure objective is practical for a 9 month project) | * Design, develop and prototype a system that can extract line item information from receipts. * Propose ways this data could be used for the benefit of the user. |
| **Project Illustration (Optional)**  Include websites, videos, diagrams or images to help students understand your project |  |
| **Open or Closed Model – Please check one:**  Open Model (Public collaborative and may use university lab equipment) or Closed Model (Virtual internship, private, with faculty liaison)  \* Please list the necessary equipment, software or data that is needed and will be provided to the team. | Please select one and clearly outline what, if any, resources will be provided:  Open Model/Public collaborative  **Tools and Equipment that will be provided include:**  \* Closed Model/Virtual internship  **Tools and Equipment that will be provided include:** |
| **Ideal Team Size**  (We prefer teams of 4 students, unless otherwise specified) | 4 |
| **Departments Accepted**  (Choose from CEE, EECS, IEOR, ME, MSE, NE. Indicate ideal team makeup and technical concentrations desired, i.e.  “1 CEE ; 1 EECS; 2 IEOR”) | *4 EECS* |
| **Specific Skills Required**  (i.e. *C/C++/C#, Python ,CAD, Robot Kinematics, MATLAB, Excel Financial Modeling, etc.*)  The more detail provided here the better team match you will receive. | Required:  Programming experience, strong enough to create prototypes/demos.  Great to have:  Image processing experience,  Mobile app development |
| **Coursework**  (Indicate any recommended/required prerequisite/co-requisite classes) | Not required but would be relevant and helpful:  [EE 225B, Digital Image Processing](http://www-inst.eecs.berkeley.edu/~ee225b/fa12/)  CS 260A, User Interface Design and Development |
| **Industry Advisor(s)**  **Name, Email, Phone Number**  \*If this is a closed model an Industry Point Person from your organization is required for the duration of the project and must be available to advise the team on a regular basis and provide all necessary resources | Bill Laaser, bill\_laaser@intuit.com, 650-944-3853  Tony Chang, [tony\_chang@intuit.com](mailto:tony_chang@intuit.com), 650.944.5193 |
| **Faculty Advisor(s) or Academic Liaison**  **Name, Department, and Email**  \*If this is an open model the Faculty Advisor or Academic Liaison is the primary party responsible for the advising and guidance of the capstone team, including providing all the necessary resources |  |