

Please find below a summary of vacancies we currently have for interns in MSRA's lab in Beijing.

These positions are specifically for students outside of China.

If you are a student who meets the criteria and who would be interested in a 3 - 6 month internship for one of these positions, please

1. Email your CV to msraih@microsoft.com cc john.warren@microsoft.com
2. Specify which project you are interested in.

Basic qualifications for all of these positions are as follows:-

Required Qualifications:

1. Good programming skills in C++/C#.
2. MS/PhD in Computer Science, Electronic Engineer or any related technical field and possess the following skills;
3. Good communication skills and excellent teamwork.
4. Good reading and written English.

1. MSRA Group = HCI

Project Introduction.

Mobile Augmented Reality by Rich sensors

The Mobile Augmented Reality Applications project explores utilizing rich sensor (GPS, Camera, etc.) equipped mobile devices as platforms for sensor-based, video see-through mobile augmented reality. The project also investigates new and exciting cloud based applications enabled by this technology, and UI solutions and paradigms motivated by the next generation mobile devices.

Role & Responsibilities

1. Explore innovative technical solutions
2. Construct data structure and algorithms
3. Write quality code for prototypes, and demos

2. MSRA Group = Systems Group

Project Introduction

In this internship, we would like to explore Robotics and its impact on system software design. Robotics is becoming an increasingly important and active research area and we want to explore the impact of it on programming models, information sharing and reliability issues.

We propose to build a simple camera carrying robot as an initial case study for studying the issues of development on robots.

Role & Responsibilities

The intern will be responsible to survey various robotic software platforms and get familiar with the i-Robot hardware to build a simple camera carrying robot. The initial scenario is for the robot to take videos on a round table when a meeting is taking place.

3. MSRA Group = Visual Computing

Project Introduction

BRDF measurement using Optic Fibers . BRDF (bidirectional reflectance distribution function) is a function that defines how light is reflected at an opaque surface. It plays an important role in computer graphics to render photorealistic scenes. To obtain the BRDFs from real-world scenes, we need to measure the reflectance property of the scene points. We develop a new system that efficiently measures the BRDF. Unlike previous approaches, our method can achieve a dense measurement of BRDFs without any occlusions. The application of this device and result will be

1. Database of BRDFs
2. e-Heritage (photorealistic rendering of cultural heritages)

Role & Responsibilities

The major role is going to be experiment of the system. The system is yet to be built; therefore, it is possible that the intern will work on the hardware development part depending on his/her start date. Most of the work will be

1. Writing software for running the system.
2. Performing measurement (experiment)
3. Writing software tools for data management for the measured BRDFs.

4. MSRA Group = Visual Computing

Project Introduction

Hand-held 3-D camera . In this project, we develop a low-cost and practical 3-D modeling device for recovering surface shape and reflectance from a set of images. We develop a new camera by attaching a point light source to a hand-held video camera. In this way, we add a photometric constraint to the multi-view stereo problem to reliably estimate the 3-D geometry of the scene. We aim at deploying the system in real-world applications, especially for e-Heritage.

Role & Responsibilities

The prototype of the camera system is ready, but it is not quite ready for use because of two reasons:

1. Hardware . Now it uses IEEE 1394 camera with an LED that requires DC power source. We like to develop a fully handheld camera using a standard video camera + a portable point light source.
2. Software . Improvement of the computational efficiency.

The candidate should have a basic knowledge about camera systems and software development knowledge in C++, especially image processing aspect. It is preferred that the candidate has a computer vision background, but it is not required.

5. MSRA group Systems

Project Introduction

We are working on a Large Scale Content Based Image Retrieval project together with Media Computing Group. One primary research topic is to find visual words from a large set of image features. We're going to extract SIFT features from millions of images and analyze them using parallel computing techniques, which will also involve various techniques from machine learning and data mining area. The goal is to understand the properties of Visual Words on a large data set and possibly answer the question whether there exists a stable set of Visual Words which can apply to different image set.

Role & Responsibilities

1. Conduct large scale clustering experiments on different sample sets. Try to analyze the properties of clustering result.
2. Write parallel programs to aid the analyzing work.
3. Apply the analyzing result to CBIR applications, such as nearly duplicate image detection.