# MIT Job Description

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| **Job Title:** Research Scientist | **Position Title:** Educational Research Scientist |
| **Reports to:** Hal Abelson | **% Effort:** 100 |
| **Department:** CSAIL | **Prepared by:** Nico Lang and Hal Abelson |
| **Date:** March 14, 2016 | |

**Project Overview:**

The MIT App Inventor team builds, supports, does educational outreach, and conducts research on the MIT App Inventor platform specifically, and computer science education more generally. App Inventor is used by more than 300 thousand monthly users, from countries around the world, both in classrooms and informal educational settings. The team is embarking on a four-year pilot study of a Scratch and MIT App Inventor based curriculum in 30 primary schools in Hong Kong.

**Position Overview:**

The MIT App Inventor Educational Research Scientist will lead the research development, data analysis, and adaptation of using MIT App Inventor and Scratch for the "Fostering Computational Thinking for Hong Kong Senior Primary School Students" project.  Working closely with the project's Principal Investigator and Project Director, the Educational Research Scientist will collaborate with researchers at MIT and in Hong Kong to develop and carry out an ambitious research agenda on computing education and computational thinking.

Our research at the MIT App Inventor group broadly focuses on systems, both technological and social, that prepare learners to build computational tools for social impact. Areas of inquiry include computing and computational thinking instruction; learning to create computational tools in informal environments; assessment of computational learning; computer science learning in interdisciplinary settings; broadening participation in computing; and the social impact that (young) people can have through the creation of computational systems.

Learn More: http://appinventor.mit.edu/

**Note: This position is funded for four years with potential for renewal.**

**\*\*Principal Duties and Responsibilities**:
- Conduct research in the areas of qualitative and quantitative research methods for education.
- Lead curriculum development efforts for an intervention for three upper-primary grades using MIT App Inventor and Scratch.
- Contribute to the definition of and/or creation of appropriate research instruments for data collection at both the learner and instructor level.
- Work with developers to define data to capture from online and in-person learning activities.
- Analyze data (qualitative and quantitative) from instruments, interviews, and online data collection.
- Lead and/or support studies using qualitative, quantitative, and design-based methods.

- Act as the main point of contact for project collaborating partners, the Hong Kong Institute of Education (HKIEd) and Dahlberg, regarding research and curriculum.
- Lead the data analysis for the MIT team and collaborate with the project's other research partners to write research papers and reports under the supervision of the Principal Investigator and Project Director.
- Presents research findings at selected conferences.
- Supervise the postdoctoral research associate and the direct work of the project's undergraduate and graduate researchers.
- Assist supervisors in writing grants for future support. Initiate new project concepts and seek funding. Develops technical proposals and makes presentations to prospective funders.
- Other projects as required.
- Work will require several trips to Hong Kong for collaboration and classroom observation, and may include additional trip(s) to present research at conferences.

**Supervision Received:**

Receives supervision from project's Principal Investigator and Program Manager.

**Supervision Exercised:**

Will supervise the project's Postdoc Associate and have oversight of project's graduate and undergraduate researchers.

**Qualifications & Skills Required:**

REQUIRED:
- PhD in the field of education, social science, discipline-based educational research in a STEM field, or a related field.
- 10+ years experience in both qualitative and quantitative research methods for education.
- Broad expertise in qualitative, quantitative, and design-based research methods, with deep expertise in at least one methodological approach (e.g. digital ethnography, learning analytics, design-based research, etc.)
- Demonstrated interest in computing and computing education, with a commitment to equity for all learners.
- Computer programming experience in Java, C++ or Python language.
- Solid communication and leadership skills.
- Excellent oral and written skills.
- Ability to travel and present work as needed.

PREFERRED:
- 10+ years Research experience in computer science education, or related subjects.
- 5+ years Experience programming and/or teaching with block-based languages.
- 10+ years Experience conducting data-intensive research, such as using user log files from games, learning-management systems or programming servers.
- Familiarity with App Inventor, Scratch, and constructionist approaches to computing education.
- Fluency in Cantonese desirable.

**Target Start Date:** May 1, 2016