Nicholas Chi-Yuen Kong, Ph.D.

CONTACT INFORMATION	Google, Inc. Mountain View, CA 94043 USA	*Phone:* (510) 229-2864 *E-mail:* kongn@google.com *Website:* kongn.org

OVERVIEW

I am interested in using technology to improve people's lives. I have industry experience with machine learning, data processing pipelines, and full stack web development. I also have extensive research experience in human-computer interaction and information visualization, and remain strongly interested in those two areas.

STATUS

Canadian citizen, U.S. permanent resident.

EXPERIENCE

2014 -

Google - Software Engineer
Developing mobile applications of machine learned models that run on-device. I led the productionization of the predictive search feature in iOS Gboard, which recommends a search query based on what the user types.
I also worked in a human computation group under Google's search infrastructure, supporting the Knowledge Graph.

2008 - 2013

Graduate researcher (UC Berkeley EECS)
Advised by Professor Maneesh Agrawala on research topics in information visualization. My thesis involved using computer vision and crowdsourcing techniques to extract information from and associate context with existing charts.

Summer 2013

Google - Software Engineering Intern (San Francisco, CA)
As part of the Search team, worked on user interfaces for editing the knowledge graph. Specifically, designed algorithms and visual interfaces that help users evaluate different judgment resolution algorithms, rater performance, and question difficulty. Worked with Google Appengine, AngularJS and JQuery in Javascript, Python, Java, and Google's production platform.
Host: Dr. Ronen Vaisenberg.

Summer 2011

Autodesk Research - Research Intern (Toronto, ON, Canada)
Mentored by Dr. Tovi Grossman. Worked on a system to enable workflow comparison for image-editing tools.
Worked with Java and the prefuse visualization toolkit.

Summer 2010

PARC - Research Assistant (Palo Alto, CA)
Mentored by Dr. Gregorio Convertino and Dr. Ed H. Chi. Worked in the Augmented Social Cognition group on collaboration tools for knowledge workers. Worked with MediaWiki (PHP), Flash, Django (Python), and the flare visualization toolkit.

Summer 2009

Microsoft Research - Intern (Redmond, WA)
Mentored by Dr. Steven Drucker and Dr. Gonzalo Ramos. Investigated techniques for tracking information propagation in the blogosphere and Twitterverse, and applied these techniques to designing a more effective RSS reader. Worked with WPF, C#, and Silverlight.

EDUCATION

University of California, Berkeley, [9/2008 - 12/2013]

Ph.D. in Computer Science, advised by Professor Maneesh Agrawala
- Thesis: *Techniques for Modifying and Augmenting Existing Charts for Improved Usability*

University of Toronto, (9/2004 - 6/2008)

B.A.Sc., Engineering Science, Computer Option
- Thesis: *Direct Compression of Bayer Color Filter Arrays*, under the supervision of Professor Konstantinos Plataniotis

SKILLS

Extensive experience   Moderate experience   Some experience

Backend: Go, Python, Java, C++, SQL, Machine learning

Frontend: JavaScript (Closure tools, jQuery, AngularJS 1.x), HTML5, CSS3, Django

Applications: MATLAB, LATEX

Design/Prototyping: Balsamiq, OmniGraffle, Adobe {Photoshop, Premiere, Illustrator}

Mathematics: Multi-variable/vector calculus, Probability theory, Statistics (experimental methods and graphical models), Linear algebra, Ordinary differential equations

SELECTED
PUBLICATIONS

Nicholas Kong, Marti A. Hearst, and Maneesh Agrawala. "Extracting References Between Text and Charts via Crowdsourcing." Proceedings of *CHI 2014*, pp. 31–40.

Nicholas Kong and Maneesh Agrawala. "Graphical Overlays: Using Layered Elements to Aid Chart Reading." Proceedings of *InfoVis 2012*. pp. 2631–2638.

Nicholas Kong, Tovi Grossman, and Björn Hartmann, George Fitzmaurice, Maneesh Agrawala. "Delta: A Tool for Representing and Comparing Workflows." Proceedings of *CHI 2012*. pp. 1027–1036.

Manolis Savva, **Nicholas Kong**, Arti Chhajta, Li Fei-Fei, Maneesh Agrawala, and Jeffrey Heer. "ReVision: Automated Classification, Analysis and Redesign of Chart Images." Proceedings of *UIST 2011*. pp. 393–402. [**Notable Paper Award**]

Nicholas Kong, Jeffrey Heer, and Maneesh Agrawala. "Perceptual Guidelines for Creating Rectangular Treemaps." Proceedings of *InfoVis 2010*. pp. 990–998. [**Honorable Mention for Best Paper**]

Jeffrey Heer, **Nicholas Kong**, and Maneesh Agrawala. "Sizing the Horizon: The Effects of Chart Size and Layering on the Graphical Perception of Time Series Visualization." Proceedings of *CHI 2009* – the ACM Conference on Human Factors in Computing Systems. pp.1303–1312. [**Best Paper Award**]

PATENTS　　　　Gregorio Convertino, Ed H. Chi, Benjamin Vincent Hanrahan, **Nicholas Chi-Yuen Kong**, Guilaume Bouchard, Cedric Philippe C. J. G. Archambeau. "System and method for supporting targeted sharing and early curation of information." US Patent No. 8,380,743, granted Feb. 19, 2013.

Gregorio Convertino, Ed H. Chi, **Nicholas Chi-Yuen Kong**, Benjamin Vincent Hanrahan, Guilaume Bouchard, Cedric Philippe C. J. G. Archambeau. "System and method for providing mixed-initiative curation of information within a shared repository." US Patent No. 8,656,286, granted Feb. 18, 2014.

AWARDS

2011	Postgraduate Scholarship D, NSERC
2008	Postgraduate Scholarship M, NSERC
	J.K. Zee Fellowship, UC Berkeley
2007	Undergraduate Student Research Award, NSERC
2006	Undergraduate Student Research Award, NSERC
2004	University of Toronto Scholar, University of Toronto
	Faculty of Applied Science and Engineering Entrance Scholarship, University of Toronto

TEACHING

Spring 2012　　**CS160 TA (Human Interfaces)** (UC Berkeley)
In charge of two discussion sections per week and grading. Aided student groups in using the Microsoft Kinect 3D depth sensor for their course projects.

Spring 2009　　**CS160 TA (Human Interfaces)** (UC Berkeley)
In charge of two discussion sections per week and grading. Aided student groups in Flash projects.

Fall 2007　　**Engineering Science Club Tutor** (University of Toronto)
Ran a drop-in weekly tutorial session in a Q & A format.

COURSEWORK　　**Graduate**
Statistical Learning Theory (CS281A)
Tangible User Interfaces (INFO262)
Advanced Computer Graphics (CS294-13)
Advanced Topics in Computer Systems (CS262A)
Visualization (CS294-10)
Human-centered computing (CS260)
Computer Vision (CS280)

Undergraduate
Algorithms and data structures, computational complexity, databases, compilers, operating systems, computer security, computer organization/architecture, electronic circuits, computer graphics, computer vision

PERSONAL　　Grew up in the Netherlands.
Reading knowledge of Dutch and 2 years of university level Japanese.
Amateur pianist with 10 years of lessons.

REFERENCES　　Available upon request.