

Qian He

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Education

Worcester Polytechnic Institute (WPI) – 2011-2016

Ph.D., Computer Science

Beijing Institute of Technology (BIT) – 2006-2010

Bachelor of Engineering, Software Engineering

Graduate with Honors



Experience

Senior Research Scientist @ Google LLC – 2021.02-present

Researching and prototyping new features and algorithms.

Staff Research Software Engineer @ Fitbit, Inc. – 2016.10-acquired

Researching and prototyping future products.

Research Assistant @ Worcester Polytechnic Institute – 2011.08-2016.09

Chief developer of the National Science Foundation project “Self-Care Management: Patient-Centered Diabetic Wound Care Using Smart Phones” (Award Number: 1065298). <https://sugar.wpi.edu>

Research Intern @ Fitbit, Inc. – 2015.05-2015.08

Prototyping new ideas with the research team.

Intern @ IBM Emerging Technology Institute – 2009.07-2009.10

Developing a Web 2.0 rich internet application (RIA) at Emerging Technology Institute of IBM China Development Lab (CDL).

Manager Assistant @ Beijing Organizing Committee for the Olympic Games – 2008

Working in Accreditation Office of Wu Ke Song Culture and Sports Center.

Research Assistant @ Beijing Key Laboratory of Intelligence Information – 2008-2010

Studying wireless network routing and Delay-Tolerant Network (DTN). Participated in State High-Tech Development Plan project “New Routing Techniques in Delay-Tolerant Wireless Ad Hoc Network”.

Projects

Fitbit Versa @ Fitbit.com – 2017

Versa was announced on March 13, 2018. It was Fitbit’s first “mass appeal” smartwatch. As the Sensor Systems Lead of this product, I coordinated the R&D department’s sensor signal performance validations + algorithm development efforts and collaborated with the industrial



design (ID), mechanical engineering (ME), electrical engineering (EE), operations (Ops), and product development (PD) teams.

On11 for Pebble @ <http://on11.mobi> – 2014

On11 is a set of fitness tracking apps and watch faces for smartwatch and smartphone promoting healthy lifestyle. On11 for Pebble can monitor users' physical activity 24 × 7. It tells them how much time they spend on sitting, walking, jogging, and sleeping. More than 29 thousand users were using On11 for Pebble on their smartwatches and it was featured on the Pebble Developer website (date accessed: 2014.10.09).

More personal projects @ <https://github.com/heqian> – 2010-Present

Skills

Hammers: [[ANSI C, ECMAScript 2015, TypeScript], [Scala, Kotlin, Dart], [Shell Script, LaTeX]]; **Lightsabers:** [[Node.js, Deno], [Docker/Podman, Aurora/Mesos], [Android/Wear SDK, Fitbit SDK, Electron, React Native, Cordova, Flutter, Expo], [Express.js, Sails.js, Play Framework, Babylon.js, Plotly.js, Vega], [Weka, TensorFlow], [Shapr3D, Cura]]; **Starships:** [Heroku, Google Cloud Platform, CoreOS/Flatcar]

Publications & Patents

1. Q. He and E. Agu, "Context-Aware Probabilistic Models for Predicting Future Sedentary Behaviors of Smartphone Users," in Journal of Healthcare Informatics Research, 6(1), 1112–152, 2022.
2. Q. He and E. Agu, "A Rhythm Analysis-Based Model to Predict Sedentary Behaviors," in IEEE/ACM Conference on Connected Health: Applications, Systems and Engineering Technologies (CHASE 2017), Philadelphia, PA, 2017.
3. Q. He and E. Agu, "Smartphone Usage Contexts and Sensable Patterns as Predictors of Future Sedentary Behaviors," in IEEE-NIH 2016 Special Topics Conference on Healthcare Innovations and Point-of-Care Technologies (HI-POCT '16), Cancun, Mexico, 2016.
4. Q. He and E. Agu, "Towards Sedentary Lifestyle Prevention: An Autoregressive Model for Predicting Sedentary Behaviors," in IEEE 10th International Symposium on Medical Information and Communication Technology (ISMICT '16), Worcester, MA, 2016.
5. Q. He and E. Agu, "A Frequency Domain Algorithm to Identify Recurrent Sedentary Behaviors from Activity Time-Series Data," in IEEE International Conference on Biomedical and Health Informatics, Las Vegas, NV, 2016.
6. B. Tulu, D. Strong, L. Wang, Q. He, E. Agu, P. Pedersen, and S. Djamasbi, "Design Implications of User Experience Studies: The Case of a Diabetes Wellness App," in 49th Hawaii International Conference on System Sciences, Kauai, HI, 2016.
7. L. Wang, P. Pedersen, D. Strong, B. Tulu, E. Agu, R. Ignatz, and Q. He, "An Automatic Assessment System of Diabetic Foot Ulcers Based on Wound Area Determination, Color Segmentation, and Healing Score Evaluation," in Journal of Diabetes Science and Technology, vol. 10, no. 2, pp. 421–428, Mar. 2016.
8. Q. He and E. Agu, "On11: An Activity Recommendation Application to Mitigate Sedentary Lifestyle," in Proceedings of the 2014 Workshop on Physical Analytics (WPA '14), Bretton Woods, NH, 2014.
9. D. Strong, E. Agu, P. Pedersen, R. Ignatz, S. Pagoto, B. Tulu, Q. He, L. Wang, R. Dunn, and D. Harlan, "Design of the Feedback Engine for a Diabetes Self-care Smartphone App," in 20th Americas Conference on Information Systems, Savannah, GA, 2014.
10. Q. He, E. Agu, D. Strong, and B. Tulu, "RecFit: A Context-Aware System for Recommending Physical Activities," in Proceedings of the 1st Workshop on Mobile Medical Applications (MMA '14), Memphis, TN, 2014.
11. E. Agu, P. Pedersen, D. Strong, B. Tulu, Q. He, L. Wang, and Y. Li, "The smartphone as a medical device: Assessing enablers, benefits and challenges," in 2013 10th Annual IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON), New Orleans, LA, 2013.
12. Q. He, E. Agu, D. Strong, B. Tulu, and P. Pedersen, "Characterizing the Performance and Behaviors of Runners Using Twitter," in 2013 IEEE International Conference on Healthcare Informatics (ICHI), Philadelphia, PA, 2013.
13. Y. Li, J. Wang, Y. Yuan, X. Fan, and Q. He, "Uncertainty Reasoning on Fuzziness and Randomness in Challenged Networks," in 2010 IEEE/IFIP 8th International Conference on Embedded and Ubiquitous Computing (EUC), Hong Kong, China, 2010.
14. X. Fan, X. Li, and Q. He, "Multicast Opportunistic Routing in Wireless Mesh Network," in Chinese Journal of Electronics, vol. 38, no. 1, pp. 32–36, 2010.
15. Q. He, Y. Li, and X. Fan, "A Study on Buffer Efficiency and Surround Routing Strategy in Delay Tolerant Network," in 2009 Eighth IEEE International Conference on Dependable, Autonomic and Secure Computing (DASC '09), Chengdu, Sichuan Province, China, 2009.
16. Y. Li, Q. He, and X. Fan, "Integration of Routing and Switching in Delay-Disruption Tolerance Network," in the 5th International Conference on Mobile Ad-hoc and Sensor Networks (MSN '09), Wu Yi Mountain, Fujian Province, China, 2009.
17. United States Patent 20150119721: P. Pedersen, D. Strong, E. Agu, B. Tulu, L. Wang, and Q. He, "System and Method for Assessing Wound," 2015.