# Minh N. B. Nguyen

**Last update: January 1st, 2022**

*Audio Software Engineer* & *Researcher* in the field of Computer Science, Human-Computer Interaction, Interactive System, Audio.

Author of 3 patents with publications & system work funded by *the U.S. National Cancer Institute, National Institutes of Health, Department of Defense*, and featured on medias (Forbes, NBCNews).

Interests & proven skills in *Programming, Audio Production, Sound Design, Game Engine, Middleware, Data Mining & Social Good.* An independent developer & a dedicated team player with interdisciplinary collaboration experiences.

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## Education

**University of Southern California**, Los Angeles, CA

- MSc. in Computer Science. Topic: *Human—Computer Interaction, Data Mining, Signal Processing, Artificial Intelligence, Visualization, Bioinformatics.*

**Ho Chi Minh City University of Technology, Vietnam National University**, Ho Chi Minh City, Vietnam.

- Honor B.Eng. in Computer Science & Engineering. Topic: *Human–Computer Interaction, Human Biometrics, Data Privacy, Mobile Security.*

**University of Washington**, Seattle, WA

- Professional Cert. in Audio Engineering. Topic: *Audio Production in Music & Video Post-production.*

## Selected Work Experiences

**Audio Programmer Volunteer / Independent Researcher** 2020–Present

- Serving as a reviewer & program committee member for top-tier journal & conferences in the field of human-computer interaction, signal processing, audio, data mining & artificial intelligence: CHI, CSCW, ICMI, AM, etc.
- Serving as a volunteer audio programmer at Games for Love developing VR game acted as distraction therapy that has helped ease suffering for 500,000 children under treatment at hospitals & other child well-being facilities.
- Developing PC & mobile application to play spatial (ambisonics, binaural) audio using Google Resonance Audio, Oculus Audio Spatializer, Unity, C#.

**Technical Audio Volunteer/Intern** – San Francisco, CA Jan. 2021–May 2021
*Women's Audio Mission (WAM)*

- Teaching and technical supporting for 12 middle school students in 2 Music Coding classes using Python & EarSketch platform as part of Girls on The Mic program.
- Video & audio production: dialogue, music, visuals for WAM's social content and events using Pro Tools, RX, After Effects.
- Technical supporting for WAM online streaming events (Girls on The Mic Showcase, WAMcon Virtual Nashville).

**Research Fellow** – Yorktown Heights, NY May 2017–Sept. 2017
*IBM Research AI*

- Publishing 3 patents & presenting at NeurIPS 2017, D4GX 2018 conferences. Media featuring on Forbes, NBCNews, ACM, etc.
- Developing & evaluating the system of Simpler Voice: Overcoming Illiteracy - an AI natural language processing system for low-literate adults by decoding complex texts into simple messages, visual & audio elements.
- Working with 5 Research Scientists & Software Engineers at IBM Research AI and NGO Literacy Coalition of Central Texas.

**Research Assistant** – Los Angeles, CA 2014–2018
*USC Integrated Media Systems Center*

- Publishing 4 papers. System demonstrated at the Former Vice President-President Joe Biden's Cancer Moonshot initiative: SXSL event at the U.S. White House: Press news [1] [2]. Presenting at ICDM 2015, AMIA 2016, ICDM 2017 conferences. Featuring on Forbes, NBC4News, The Hill, etc.
- Developing, deploying, manual writing & technical supporting on-site/on-phone at 3 local LA hospitals with 55 patients for ATOM-HP: a system supporting physicians to quantify cancer patients' performance during chemotherapy by analyzing signals from wearables worn by patients & 3D camera sensors.
- Interdisciplinary research. The ATOM-HP program is a joint effort of the National Cancer Institute's Center for Strategic Initiatives and the Department of Defense's Rapid Response Technology Office. The project described was supported in part by award number P30CA014089 from the National Cancer Institute.

**Teaching Assistant & Guest Lecturer** 2013, 2014–2018
*University of Southern California (USC)* – Los Angeles, CA
*Ho Chi Minh City University of Technology (HCMUT)* – Vietnam

- Teaching assistant for 2 courses at USC: CSCI-585 Database Systems (2016, 2017) with 500+ undergrad/master students each class. Holding office hours for lessons review & tutorials, exam proctoring & grading.
- Guest lecturer for USC INF-552 Machine Learning for Data Informatics (2015).
- Teaching assistant for Artificial Intelligence (2013) at HCMUT. Teaching tutorial/lab sessions for 50+ students each session, preparing exams & grading.

**Research Student** – Ho Chi Minh City, Vietnam 2012–2014
*Ho Chi Minh City University of Technology, Vietnam National University*

- Publishing 1 paper at ICT-EurAsia 2014. Contributed to the Mobile Data Privacy project at D-STAR lab funded by Vietnam National University.
- Developing a mobile phone authentication framework (Android & iOS) using human biometrics: voice & facial recognition.
- Collaborating with 1 research scientist at D-STAR lab and 2 other research students.

**Web Developer Intern** – Ho Chi Minh City, Vietnam May 2012–Sept. 2012
*East Agile*

- Participating in 2 projects: 1 internal and 1 client released project. Pair programming, Agile methodology.
- Developing, testing & deploying an internal Human Resources web application using Ruby, Ruby-on-Rails (RoR) framework.
- Project management & communicating with customer on the client poject. Developing, testing, & deploying a video streaming web application.

## Publications

### Peer-reviewed Papers

1. **Minh N.B. Nguyen***, Zaki Hasnain*, Ming Li, Tanya Dorff, David Quinn, Sanjay Purushotham, Luciano Nocera, Paul K. Newton, Peter Kuhn, Jorge Nieva, and Cyrus Shahabi. Mining Human Mobility to Quantify Performance Status. *Demonstration Paper at the 2017 IEEE International Conference on Data Mining (ICDM)*, New Orleans, LA, USA, Nov. 18-21, 2017.
2. **Minh Nguyen**, Sanjay Purushotham, Hien To, and Cyrus Shahabi. m-TSNE: A Framework for Visualizing High-Dimensional Multivariate Time Series. *The 2016 Workshop on Visual Analytics in Healthcare in conjunction with the American Medical Informatics Association (AMIA) Annual Symposium.* Chicago, IL, USA, Nov. 12-16, 2016.
3. Jiun-Yu Kao, **Minh Nguyen**, Luciano Nocera, Cyrus Shahabi, Antonio Ortega, Carolee Winstein, Ibrahim Sorkhoh, Yu-chen Chung, Yi-an Chen, and Helen Bacon. Validation of Automated Mobility Assessment Using a Single 3D Sensor. *The 4th International Workshop on Assistive Computer Vision and Robotics in conjunction with the 14th European Conference on Computer Vision (ECCV).* Amsterdam, The Netherlands, Oct. 9th, 2016.
4. **Minh Nguyen**, Liyue Fan, and Cyrus Shahabi. Activity Recognition Using Wrist-Worn Sensors for Human Performance Evaluation. *The 6th Workshop on Biological Data Mining and its Applications in Healthcare in conjunction with the 14th IEEE International Conference on Data Mining (ICDM).* Atlantic City, New Jersey, USA, Nov. 14-17, 2015.
5. Van N. Nguyen, Vuong Q. Nguyen, **Minh N.B. Nguyen**, and Tran K. Dang. Fuzzy Logic Weight Estimation in Biometric-Enabled Co-authentication Systems. *The 2014 Information and Communication Technology - EurAsia Conference (ICT-EurAsia).* Bali, Indonesia, Apr. 14-17, 2014.

### Posters

1. **Minh N.B. Nguyen**, Samuel Thomas, Anne E. Gattiker, Sujatha Kashyap, and Kush R. Varshney. SimplerVoice: A Key Message & Visual Description Generator System for Illiteracy. *The 2018 Data for Good Exchange Conference (D4GX).* New York, NY, USA, Sept. 16, 2018.
2. **Minh N.B. Nguyen**, Samuel Thomas, Anne E. Gattiker, Sujatha Kashyap, and Kush R. Varshney. SimplerVoice: Overcoming Illiteracy. *The 2017 Neural Information Processing Systems - Women in Machine Learning Workshop.* Long Beach, CA, USA, Dec. 7, 2017.

3. **Minh N.B. Nguyen**, Mehrnoosh Mirtaheri, Joanne Kao, Aria Azadegan, Luciano Nocera, Sanjay Purushotham, Peter Kuhn, Jorge Nieva, and Cyrus Shahabi. ATOM-HP: Analytical Technologies to Objectively Measure Human Performance - Data Analysis. *The 2017 USC Integrated Media Systems Center retreat.* Los Angeles, CA, USA, Mar. 23, 2017.

4. **Minh N.B. Nguyen**, Luan Tran, Kien Nguyen, Aaron Mejia, Luciano Nocera, Liyue Fan, Cyrus Shahabi, Peter Kuhn, and Jorge Nieva. ATOM-HP: Analytical Technologies to Objectively Measure Human Performance - System & Data Preprocessing. *The 2016 USC Integrated Media Systems Center retreat.* Los Angeles, CA, USA, June 1, 2016.

5. **Minh N.B. Nguyen**, Liyue Fan, and Cyrus Shahabi. Human Activity Recognition with Wearable Devices. *The 2015 USC Integrated Media Systems Center retreat.* Los Angeles, CA, Apr. 2, 2015.

### Technical Reports

1. **Minh N.B. Nguyen**, Samuel Thomas, Anne E. Gattiker, Sujatha Kashyap, and Kush R. Varshney. SimplerVoice: A Key Message & Visual Description Generator System for Illiteracy. *The 2018 Data for Good Exchange Conference (D4GX).* New York, NY, USA, Sept. 16, 2018.

2. Hien To, Sasan Tavakkol, Seon H. Kim, **Minh Nguyen**, and Cyrus Shahabi. On Acquisition and Analysis of Visual Data for Crowdsourcing Disaster Response. *Technical Report, University of Southern California*, 2016.

## Patents

1. Sujatha Kashyap, Anne E. Gattiker, Kaipeng Li, Samuel Thomas, **Minh N. B. Nguyen**, and Thomas Hubregtsen. Constructing, evaluating, and improving a search string for retrieving images indicating item use. *Patent No. 11061943.* United States, July 13, 2021.

2. Anne E. Gattiker, Samuel Thomas, **Minh N. B. Nguyen**, Sujatha Kashyap, and Thomas Hubregtsen. Constructing, evaluating, and improving a search string for retrieving images indicating item use. *Patent No. 11055345.* United States, July 6, 2021.

3. Sujatha Kashyap, Anne E. Gattiker, Kaipeng Li, Samuel Thomas, **Minh N. B. Nguyen**, and Thomas Hubregtsen. Constructing, evaluating, and improving a search string for retrieving images indicating item use. *Patent No. 10664517.* United States, May 26, 2020.

## Professional & Community Activities

- **Program Committee Member** of The 7th Workshop on Mining and Learning from Time Series (MiLeTS) in conjunction with the 27th ACM SIGKDD Conference on Knowledge Discovery & Data Mining (KDD 2021).
- **Scientific Committee Member** of The 2021 International Audio Mostly Conference: A Journey in Sound (AM'21).
- **Reviewer** of The 2022 ACM CHI Conference on Human Factors in Computing Systems (CHI 2022).

- **Reviewer** of The 14th ACM SIGCHI Symposium on Engineering Interactive Computing Systems (EICS 2022).
- **Reviewer** of The 23rd ACM International Conference on Multimodal Interaction (ICMI 2021).
- **Reviewer** of The 24th ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW 2021).
- **Reviewer** of ACM Transactions on Spatial Algorithms and Systems (TSAS).
- **Member/Student Member** of The Audio Engineering Society AES, IEEE, Systers, SoundGirls.org.
- **Teaching/Technical Supporting** 12 Aim High middle school students in 2 classes of Audio Coding in the Girls on the Mic program of Women's Audio Mission 2021.
- **Live Audio Volunteer** at The Vera Project 2020.
- **Mentoring** 3 high school students and 10+ undergrad/master students at USC in ATOM-HP project 2014-2017.
- **Student Volunteer** at Grace Hopper 2016, ICDM 2015, SSEAYP 2013.

## Honors & Awards

- Game Audio Diversity Alliance Scholarship 2021.
- SoundGirls' Leslie Ann Jones Scholarship in Honor of Ethel Gabriel 2020.
- IBM Social Good Fellowship 2017.
- Computer Research Association - Women Travel Award Grad Cohort 2017.
- USC Women in Science and Engineering Travel Grant for IEEE ICDM 2017.
- GSG Travel Grant for AMIA VAHC 2016.
- USC Grace Hopper Scholarship 2016.
- Student Travel Award for IEEE ICDM 2015.
- Vietnam Education Foundation Fellowship 2014-2017.
- HCMUT Dean's Excellent Student (Top 1%) Award B.Eng. 2014.
- Kanden-SS Scholarship 2013.
- Odon Vallet Scholarship 2013.
- HCMUT Dean's Honor Scholarships covering B.Eng. full tuition 2009 - 2014.

## Podium Presentation & Talks

- System demonstration at ICDM 2017 - the IEEE International Conference on Data Mining. *"Mining Human Mobility to Quantify Performance Status"*, New Orleans, LA, USA, Nov. 19, 2017.
- Podium presentation at AMIA 2016 - American Medical Informatics Association Annual Symposium. *"m-TSNE: A Framework for Visualizing High-Dimensional Multivariate Time Series"*, Chicago, IL, USA, Nov. 12, 2016.

- Podium presentation at ICDM 2015 - the IEEE International Conference on Data Mining. *"Activity Recognition Using Wrist-Worn Sensors for Human Performance Evaluation"*, Atlantic City, NJ, USA, Nov. 14, 2015.
- Guest lecturer at Informatics 552 - Machine Learning for Data Informatics. *"Activity Recognition with Wearables"*, University of Southern California, Fall 2015.

## Media

- Project **ATOM-HP** was featured on:
  - ScienceBlog. *"Wearable Fitness Trackers Can Help Doctors Treat Cancer Patients"* (Feb. 15, 2021).
  - DailyTrojan. *"USC researchers tackle medical issues at the Michelson Center"* (May 29, 2018).
  - HuffPost. *"How Can Wearable Technology Improve Cancer Treatment?"* (Dec. 6, 2016).
  - Keck Medicine of USC. *"USC researchers to participate in Vice President Joe Biden's Cancer Moonshot exhibit at the White House event"* (Nov. 23, 2016).
  - Forbes. *"Wearable Technology Is Improving Cancer Treatment One Day At A Time"* (Oct. 19, 2016).
  - The Hill. *"Technology can be used to bridge the gap between doctor's visits"* (Sept. 30, 2016).
  - NBC4News. *"Wearable Tech Improves Cancer Treatment"* (Sept. 29, 2016).
  - ScienceDaily. *"How wearable technology can improve cancer treatment"* (Sept. 28, 2016).
  - National Cancer Institute, Center for Strategic Scientific Initiatives. *"Analytical Technologies to objectively measure human performance (ATOM-HP)"*.

- Project **SimplerVoice: Overcoming Illiteracy** was featured on:
  - Bitonus. *"10 wonderful examples of the role of artificial intelligence for the common good – ITNetwork"* (Jun. 4, 2021).
  - Forbes. *"10 Wonderful Examples Of Using Artificial Intelligence (AI) For Good"* (Jun. 22, 2020).
  - CIO. *"How AI/ML is helping to eradicate poverty"* (Jun. 18, 2019).
  - ACM News. *"Can AI Solve Poverty?"* (Sept. 5, 2017).
  - THINK Blog. *"Clarifying the Complex with a 'Simpler Voice'"* (Jul. 31, 2017).
  - NBCNews. *"AI Is a Game-Changer in the Fight Against Hunger and Poverty. Here's Why"* (Jun. 21, 2017).

- Futurism. *"IBM's Newest Program Uses AI to Solve the Biggest Problems Facing Humanity Today"* (Jun. 9, 17).
- Mashable. *"IBM turns to artificial intelligence to solve poverty, hunger, and illiteracy"* (Jun. 7, 2017).

## Technical Skills

- *Programming*: C/C++, C#, Python, Java, MATLAB, Max/MSP, JavaScript, Ruby, Scala, HTML, CSS.
- *Digital Signal Processing/AI tool*: NumPy, Matplotlib, NLTK, Weka, TensorFlow, PyTorch.
- *Digital Audio Workstation*: Pro Tools, Ableton Live.
- *SDK*: JUCE, Google Resonance Audio, Kinect.
- *Game Engine & Middleware*: Unity, Wwise (certified).
- *Database*: MySQL, Postgres, NoSQL, Spatial-DBs, MapReduce.
- *Platform*: Mobile (Android, iOS), PC, Web.
- *Others*: VR / AR, Agile methodology, Git, Sound Design, Recording Mixing, Interdisciplinary & Collaborative research.

## References

Available upon request.