Stanford

Ge Wang

Associate Professor of Music, Senior Fellow at the Stanford Institute for HAI and Associate Professor, by courtesy, of Computer Science

📄 Curriculum Vitae available Online

Bio

BIO

Ge Wang is an Associate Professor at Stanford University in the Center for Computer Research in Music and Acoustics (CCRMA). He specializes in the art of design and computer music — researching programming languages and interactive software design for music, interaction design, mobile music, laptop orchestras, expressive design of virtual reality, aesthetics of music technology design, and education at the intersection of computer science and music. Ge is the author of the ChucK music programming language, the founding director of the Stanford Laptop Orchestra (SLOrk). Ge is also the Co-founder of Smule (reaching over 200 million users), and the designer of the iPhone's Ocarina and Magic Piano. Ge is a 2016 Guggenheim Fellow, and the author of ARTFUL DESIGN: TECHNOLOGY IN SEARCH OF THE SUBLIME—a book on design and technology, art and life, published by Stanford University Press in 2018 (see https://artful.design/)

ACADEMIC APPOINTMENTS

- Associate Professor, Music
- Senior Fellow, Institute for Human-Centered Artificial Intelligence (HAI)
- Associate Professor (By courtesy), Computer Science

ADMINISTRATIVE APPOINTMENTS

- Associate Professor, CCRMA | Music Department, Stanford University, (2017- present)
- Associate Professor by courtesy, Computer Science, Stanford University, (2017- present)
- Faculty Fellow, Stanford Center @ Peking University, (2013-2013)
- Annenberg Faculty Fellow, Stanford University, (2009-2011)
- Assistant Professor, CCRMA | Music Department, Stanford University, (2007-2017)
- Assistant Professor by courtesy, Computer Science, Stanford University, (2007-2017)
- Instructor, Dartmouth College, (2006-2006)
- Ph.D. Candidate, Department of Computer Science, Princeton University, (2001-2007)

HONORS AND AWARDS

- Silver Medal: Graphic Novel / Drawn Book (General): Artful Design, Independent Publisher Book Awards (IPPY) (2019)
- Recipient, Roberta Bowman Denning Fund for Humanities and Technology (2017)
- Fellow, Guggenheim Foundation (2016)
- Champion of the Arts, Cantabile Youth Singers and City of Palo Alto. (2013)
- Emerging Pioneer Award, Independent jurors, KAPi at CES (2012)
- Best Children's App: Magic Piano, 11 independent jurors from over 500 products at KAPi, CES (2011)

- App-Nation Pioneer Award, App-Nation (2010)

- Apple Hall of Fame App: Ocarina, Apple Inc. (2010)

- Entrepreneurs We Love, Inc. Magazine (2010)

- The 2010 Creativity 50 Award (for creative thinking and doing in media, technology, and culture), Creativity Magazine (2010)

- The 2009 Creativity 50 Award (for creative thinking and doing in media, technology, and culture), Creativity Magazine (2009)

- The Silicon Valley 40 Under 40, San Jose Business Journal (2009)

- Co-winner: 2004 ACM Multimedia Best Open-Source Software Competition, ACM Multimedia (2004)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Board Member, San Francisco Symphony Board of Governors (2011 - present)

- Senator, Stanford Faculty Senate (2019 - present)

- Editorial Board Member, Stanford University Press (2018 - present)

- Founding Director, Stanford Laptop Orchestra (SLOrk) (2008 - present)

- Founding Director, CCRMA VR Design Lab (2018 - present)

- Co-founder, Smule a mobile music startup (2008 - 2013)

- Founding Director, Stanford Mobile Phone Orchestra (MoPhO) (2008 - present)

- Member, TOPLAP (live coding organization) (2004 - present)

PROGRAM AFFILIATIONS

- Symbolic Systems Program

PROFESSIONAL EDUCATION

- Ph.D., Princeton University , Computer Science (2008)

- M.S., Princeton University , Computer Science (2003)

- B.S., Duke University , Computer Science (2000)

PATENTS

- Ge Wang, Spencer D. Salazar, Perry R. Cook. "United States Patent 8222507 System and Method for Capturing and Rendering of Performance on Synthetic Musical Instrument", Smule

LINKS

- Book: Artful Design: https://artful.design/

- Ge Wang's Homepage: https://ccrma.stanford.edu/~ge/

- Guggenheim Fellow: Ge Wang: https://www.gf.org/fellows/all-fellows/ge-wang/

- TED talk: "The DIY Orchestra of the Future": https://go.ted.com/gewang

- Ocarina: Designing the iPhone's Magic Flute: https://ccrma.stanford.edu/~ge/ocarina/

- ChucK Music Programming Language: http://chuck.stanford.edu/

- Stanford Laptop Orchestra: http://slork.stanford.edu/

- Stanford VR Design Lab @ CCRMA: http://xr.stanford.edu/

- Music | Computing | Design: http://mcd.stanford.edu/

Research & Scholarship

PROJECTS

- Artful Design: Technology in Search of the Sublime - Stanford University (2015 - 2018)

Teaching

COURSES

2023-24

- Compositional Algorithms, Psychoacoustics, and Computational Music: MUSIC 220B (Win)

- Music and AI: CS 470, MUSIC 356 (Win)

- Music, Computing, Design: The Art of Design: CS 476A, MUSIC 256A (Aut)

- Research and Development for Stanford VR Orchestra: MUSIC 228X (Win)

- Stanford Laptop Orchestra: Composition, Coding, and Performance: CS 170, MUSIC 128 (Spr)

- Stanford Virtual Reality Orchestra (sVoRk): MUSIC 228 (Spr)

2022-23

- Compositional Algorithms, Psychoacoustics, and Computational Music: MUSIC 220B (Win)

- Music and AI: CS 470, MUSIC 356 (Win)

- Music, Computing, Design: The Art of Design: CS 476A, MUSIC 256A (Aut)

- Stanford Laptop Orchestra: Composition, Coding, and Performance: CS 170, MUSIC 128 (Spr)

2021-22

- Compositional Algorithms, Psychoacoustics, and Computational Music: MUSIC 220B (Win)

- Design that Understands Us: THINK 66 (Win)

- Music, Computing, Design: The Art of Design: CS 476A, MUSIC 256A (Aut)

- Stanford Laptop Orchestra: Composition, Coding, and Performance: CS 170, MUSIC 128 (Spr)

2020-21

- Compositional Algorithms, Psychoacoustics, and Computational Music: MUSIC 220B (Win)

- Design that Understands Us: THINK 66 (Win)

- Fundamentals of Computer-Generated Sound: MUSIC 220A (Spr)

- Music, Computing, Design: The Art of Design: CS 476A, MUSIC 256A (Aut)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Marise van Zyl

Doctoral Dissertation Advisor (AC)

Kunwoo Kim, Michael Mulshine

Master's Program Advisor

Trevor Carrell, Yiheng Dong, Clara Everett, John Finkelman, Gayatridevi Kamat Tarcar, Emily Kuo, Jen Luo, Jason Mei, Jaeyong Park, Rochelle Tham, Ryan Wixen, Sami Wurm

Doctoral (Program)

Yikai Li, Michael Mulshine, Andrew Zhu

Publications

PUBLICATIONS

- **Doing vs. Being: A philosophy of design for artful VR** *JOURNAL OF NEW MUSIC RESEARCH*
  Atherton, J., Wang, G.
  2020; 49 (1): 35–59

- **Artful Design: Technology in Search of the Sublime (A MusiComic Manifesto)**
  Wang, G.
  Stanford University Press.2018

- **Some Principles of Visual Design for Computer Music** *LEONARDO MUSIC JOURNAL*
  Wang, G.
  2016; 26: 14-19

- **Game Design for Expressive Mobile Music** *New Interfaces for Musical Expression*
  Wang, G.
  2016

- **World Stage: Crowdsourcing Paradigm for Expressive Social Mobile Music** *JOURNAL OF NEW MUSIC RESEARCH*
  Wang, G., Salazar, S., Oh, J., Hamilton, R.
  2015; 44 (2): 112-128

- **ChucK: A Strongly-timed Computer Music Language** *COMPUTER MUSIC JOURNAL*
  Wang, G., Cook, P. R., Salazar, S.
  2015; 39 (4): 10-29

- **Ocarina: Designing the iPhone's Magic Flute** *COMPUTER MUSIC JOURNAL*
  Wang, G.
  2014; 38 (2): 8-21

- **The laptop orchestra as classroom** *COMPUTER MUSIC JOURNAL*
  Wang, G., Trueman, D., Smallwood, S., Cook, P. R.
  2008; 32 (1): 26-37

- **Mobile Music, Sensors, Physical Modeling, and Digital Fabrication: Articulating the Augmented Mobile Instrument** *APPLIED SCIENCES-BASEL*
  Michon, R., Smith, J., Wright, M., Chafe, C., Granzow, J., Wang, G.
  2017; 7 (12)

- **Don't Forget the Laptop: Using Native Input Capabilities for Expressive Musical Control** *NIME READER: FIFTEEN YEARS OF NEW INTERFACES FOR MUSICAL EXPRESSION*
  Fiebrink, R., Wang, G., Cook, P. R., Jensenius, A. R., Lyons, M. J.
  2017; 3: 285–97

- **On-the-Fly Programming: Using Code as an Expressive Musical Instrument** *NIME READER: FIFTEEN YEARS OF NEW INTERFACES FOR MUSICAL EXPRESSION*
  Wang, G., Cook, P. R., Jensenius, A. R., Lyons, M. J.
  2017; 3: 193–210

- **THE LAPTOP ORCHESTRA** *ROUTLEDGE COMPANION TO MUSIC, TECHNOLOGY, AND EDUCATION*
  Wang, G., King, A., Himonides, E., Ruthmann, S. A.
  2017: 159–69

- **Programming for Musician and Digital Artists: Creating Music with ChucK**
  Kapur, A., Cook, P. R., Salazar, S., Wang, G.
  Manning.2015

- **Improvisation of the Masses: Anytime, Anywhere Music.** *Oxford Handbook of Improvisation Studies*
  Wang, G.
  Oxford University Press.2014

- **Principles of Visual Design for Computer Music** *International Computer Music Conference*
  Wang, G.
  2014

- **Auraglyph: Handwritten Computer Music Composition and Design** *Proceedings of the International Conference on New Interfaces for Musical Expression.*
  Salazar, S., Wang, G.
  2014

- **The World Is Your Stage: Making Music on the iPhone** *Oxford Handbook of Mobile Music Studies*
  Wang, G.
  edited by Gopinath, S., Stanyek, J.
  Oxford University Press.2014: 487–504

- **The Mobile Phone Orchestra** *Oxford Handbook of Mobile Music Studies*
  Wang, G., Essl, G., Penttinen, H.
  edited by Gopinath, S., Stanyek, J.
  Oxford University Press.2014: 453–469

- **Laughter Modulation: from Speech to Speech-Laugh** *Proceedings of Interspeech, ISCA*
  Oh, J., Wang, G.
  2013

- **SoundCraft: Transducing Starcraft 2** *Proceedings of the International Conference on New Interfaces for Musical Expression*
  Cerqueira, N., Salazar, S., Wang, G.
  2013

- **Programming for Musician and Digital Artists: Making Music with ChucK**
  Kapur, A., Cook, P. R., Salazar, S., Wang, G.
  Manning Press.2013

- **LOLOL: Laugh Out Loud On Laptop** *Proceedings of the International Conference on New Interfaces for Musical Expression*
  Oh, J., Wang, G.
  2013

- **A Framework for Sonification of Vicon Motion Capture Data** *Proceedings of the International Conference on Digital Audio Effects*
  Kapur, A., Tzanetakis, G., Virji-Babul, N., Wang, G., Cook, P. R.
  2012

- **Borderlands: An Audiovisual Interface for Granular Synthesis.** *Proceedings of the International Conference on New Interfaces for Musical Expression*
  Carlson, C., Wang, G.
  2012

- **Many-Person Instruments for Computer Music Performance** *Proceedings of the International Conference on New Interfaces for Musical Expression*
  Rotondo, M., Kruge, N., Wang, G.
  2012

- **Chugens, Chubgraphcs, and Chugins: 3 Tiers for Extending ChucK** *Proceedings of the International Computer Music Conference*
  Salazar, S., Wang, G.
  2012

- **User-guided Variable-rate Timestretching via Stiffness Control** *Proceedings of the International Conference on Digital Audio Effects*
  Bryan, N., Herrera, J., Wang, G.
  2012

- **Evaluating Crowd-sourcing through Amazon Mechanical Turk as a Technique for Conducting Music Perception Experiments** *Proceedings of the International Conference of Music Perception and Cognition*

Oh, J., Wang, G.

2012

- **Social Composition: Musical Data Systems for Expressive Mobile Music** *LEONARDO MUSIC JOURNAL*

  Hamilton, R., Smith, J., Wang, G.

  2011; 21: 57-64

- **Musical Influence Network Analysis and Rank in Sample-Based Music** *Proceedings of the International Conference on Music Information Retrieval*

  Byran, N. J., Wang, G.

  2011

- **Audience-participation Techniques Based on Social Mobile Computing** *Proceedings of the International Computer Music Conference*

  Oh, J., Wang, G.

  2011

- **Ge Wang: The Machine That Makes You Musical** *THE NEW YORK TIMES MAGAZINE*

  Walker, R.

  2011

- **Breaking Barriers with Sound** *ACM Symposium on User Interface Software and Technology (UIST)*

  Wang, G.

  2011

- **Converge: An Omni-Biographical Composition** *COMPUTER MUSIC JOURNAL EMILE*

  Oh, J., Wang, G.

  2011; 9

- **Designing for the iPad: Magic Fiddle**

  Wang, G., Oh, J., Lieber, T.

  2011

- **MadPad: A Crowdsourcing System for Audiovisual Sampling** *Proceedings of the International Conference on New Interfaces for Musical Expression*

  Kruge, N., Wang, G.

  2011

- **Two Turntables and a Mobile Phone** *Proceedings of the International Conference on New Interfaces for Musical Expression*

  Bryan, N. J., Wang, G.

  2011

- **MoMu: A Mobile Music Toolkit** *Proceedings of the International Conference on New Interfaces for Musical Expression*

  Byran, N. J., Herrera, J., Oh, J., Wang, G.

  2010

- **LUSH: An Organic Eco-Musical System** *Proceedings of the International Conference on New Interfaces for Musical Expression*

  Choi, H., Wang, G.

  2010

- **Evolving the Mobile Phone Orchestra**

  Oh, J., Herrera, J., Bryan, N. J., Dahl, L., Wang, G.

  2010

- **Sound Bounce: Physical Metaphors in Designing Mobile Music Performance** *Proceedings of the International Conference on New Interfaces for Musical Expression*

  Dahl, L., Wang, G.

  2010

- **Sonification and Visualization of Neural Data** *Proceedings of the International Conference on Auditory Display*

  Chang, M. H., Wang, G., Moore, T., Berger, J.

  2010

- **Smule = Sonic Media: An Intersection of the Mobile, Musical, and Social** *Proceedings of the International Computer Music Conference*
  Wang, G., Essl, G., Smith, J., Salazar, S., Cook, P., Hamilton, R., Fiebrink, R., Berger, J., Zhu, D., Ljungstrom, M., Berry, A., Wu, J., Kirk, et al
  2009

- **Stanford Laptop Orchestra (SLOrk).** *Proceedings of the International Computer Music Conference*
  Wang, G., Bryan, N. J., Oh, J., Hamilton, R.
  2009

- **Ge Wang: the iPhone's Music Man** *IEEE SPECTRUM*
  Perry, T.
  2009

- **Laptop Orchestras and Machine Learning in Real-time Music Performance** *ACM CHI 2009, Computational Creativity Support Workshop*
  Fiebrink, R., Cook, P., Smallwood, S., Trueman, D., Wang, G.
  2009

- **Composing for laptop orchestra** *COMPUTER MUSIC JOURNAL*
  Smallwood, S., Trueman, D., Cook, P. R., Wang, G.
  2008; 32 (1): 9-25

- **The ChucK Audio Programming Language: A Strongly-timed Environ/mentality**
  Wang, G.
  Princeton University.2008

- **A History of Programming and Music** *Cambridge Companion to Electronic Music*
  Wang, G.
  edited by Collins, N., D'Escrivan, J.
  Cambridge University Press.2008

- **Foundations for On-the-fly Learning in the ChucK Programming Language** *Proceedings of the International Computer Music Conference*
  Fiebrink, R., Wang, G., Cook, P. R.
  2008

- **China on the Edge: Explorations in Network-based Performance** *Proceedings of the International Conference on Digital Arts (ARTECH)*
  Caceres, J., Hamilton, R., Iyer, D., Chafe, C., Wang, G.
  2008

- **MoPhO: Do Mobile Phones Dreams of Electric Orchestras?** *Proceedings of the International Computer Music Conference*
  Wang, G., Essl, G., Pentinnen, H.
  2008

- **Support for MIR Prototyping and Real-time Applications of the ChucK Programming Language** *Proceedings of the International Conference on Music Information Retrieval*
  Fiebrink, R., Wang, G., Cook, P. R.
  2008

- **Developments and Challenges Turning Mobile Phones into Generic Music Performance Platforms** *Proceedings of Mobile Music Workshop*
  Essl, G., Wang, G., Rohs, M.
  2008

- **Combining Analysis and Synthesis in the ChucK Programming Language** *Proceedings of the International Computer Music Conference*
  Wang, G., Fiebrink, R., Cook, P. R.
  2007

- **Musical Tapestry: Re-composing Natural Sounds** *JOURNAL OF NEW MUSIC RESEARCH*
  Misra, A., Wang, G., Cook, P. R.
  2007; 36 (4): 241-250

- **Don't Forget the Laptop: Using Native Input Capabilities for Expressive Musical Control** *Proceedings of the International Conference on New Interfaces for Musical Expression*

Fiebrink, R., Wang, G., Cook, P. R.
2007

- **A New Paradigm for Sound Design** *Proceedings of the International Conference on Digital Audio Effects*
  Misra, A., Cook, P. R., Wang, G.
  2006

- **Building Collaborative interFaces in the Audicle** *Proceedings of the International Conference on New Interfaces for Musical Expression*
  Wang, G., Misra, A., Cook, P. R.
  2006

- **PLOrk: Princeton Laptop Orchestra, Year 1** *Proceedings of the International Computer Music Conference.*
  Trueman, D., Cook, P. R., Smallwood, S., Wang, G.
  2006

- **miniAudicle and ChucK Shell: New Interfaces for ChucK Development and Performance** *Proceedings of the International Computer Music Conference*
  Salazar, S., Wang, G., Cook, P. R.
  2006

- **Designing and Implementing the ChucK Programming Language** *Proceedings of the International Computer Music Conference*
  Wang, G., Cook, P. R., Misra, A.
  2005

- **Co-Audicle: A Collaborative Audio Programming Space** *Proceedings of the International Computer Music Conference*
  Wang, G., Misra, A., Davidson, P., Cook, P. R.
  2005

- **SndTools: Real-time Audio DSP and 3D Visualization** *Proceedings of the International Computer Music Conference*
  Misra, A., Wang, G., Cook, P. R.
  2005

- **Yeah ChucK It! => Dynamic Controllable Interface Mapping** *Proceedings of the International Conference on New Interfaces for Musical Expression*
  Wang, G., Misra, A., Kapur, A., Cook, P. R.
  2005

- **Interactive Network Media: A Dream Worth Dreaming** *Organised Sound*
  Misra, A., Wang, G., Davidson, P., Cook, P.
  2005; 10 (3): 209-219

- **On-the-fly Programming: Using Code as an Expressive Musical Instrument** *Proceedings of the International Conference on New Interfaces for Musical Expression*
  Wang, G., Cook, P. R.
  2004

- **Audicle: A Context-sensitive, On-the-fly Audio Programming Environ/mentality** *Proceedings of the International Computer Music Conference*
  Wang, G., Cook, P. R.
  2004

- **ChucK: A Programming Language for On-the-fly, Realtime Audio Synthesis and Multimedia** *Proceedings of ACM Multimedia*
  Wang, G., Cook, P. R.
  2004

- **ChucK: A Concurrent, On-the-fly Audio Programming Language** *Proceedings of the International Computer Music Conference*
  Wang, G., Cook, P. R.
  2003

PRESENTATIONS

- TED Talk: "The DIY Orchestra of the Future" - TED (2014)

- Keynote: "The Art of Designing Computer Music" - International Conference on Mathematics and Computation in Music (2015)

- Central China Television (CCTV): "We World: Ge Wang, Computer Musician" - Central China Television (CCTV) (2015)

- Keynote: "ChucK: 10 Years of Programming for Music" - CalArts Digital Arts Expo (2014)

- Keynote: "10 Past and Future Lessons of Laptop Orchestra" - 1st Symposium on Laptop Ensembles & Orchestras (SLEO) (2012)

- Keynote: "Breaking Barriers with Sound" - ACM UIST – Symposium on User Interface and Software and Technology (October 2011)

- Keynote: "Music, Computer, People (Art, Technology, Entrepreneurship)" - Mobile Developer Conference China (2012)

- Keynote: "The World is Your Stage: Mobile-Social Music" - Web 2.0 Expo (2010)

- "Ge Wang: Computer Musician" - EG (Entertainment Gathering) (2010 - 2012)