

# Thomas Walther

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## Recent Employment

- 11/2015 - now Co-Founder and CTO at Sonalytic, London, an artificial intelligence startup
- **Led a growing team of researchers and developers for building and improving a large-scale audio fingerprinting system that leverages state-of-the-art artificial intelligence**
  - Scaled the audio fingerprint system to hold over 6 million reference songs, processing over half an hour of music per second on a highly performant, scalable and redundant distributed system
- 09/2014 - 10/2015 Co-Founder and Software Architect at GeoTrackID, Berlin
- **Designed and implemented a novel audio fingerprinting algorithm that is robust to pitch-shifting and time-stretching (see patents)**
  - Built a performant prototype system for the fingerprint algorithm using SQL and NoSQL databases, a custom multi-dimensional search index, and message queues
  - Developed, built and installed hardware devices for recording and fingerprinting music in 8 major clubs and on 4 big festivals, a web service for recording real-time radio streams from over 100 radio stations, and a dashboard that shows record labels where their music is being played
- 07/2013 - 07/2014 Co-Founder at Humtap Inc., a music software startup that raised \$1,5M in seed funding
- **Invented, implemented and combined music information retrieval algorithms for beat, onset, silence and key detection**
  - Led a small team of music software engineers on building automated composition algorithms
  - Created a scalable infrastructure for server-side automated composition and audio processing

## Education

- 09/2012 - 06/2013 **Master of Arts in Music, Science & Technology** at the Center for Computer Research in Music and Acoustics (CCRMA), Stanford University, with focus on digital signal processing, **GPA 4.03/4.0**
- 10/2009 - 09/2012 **Bachelor of Science in Computer Science** at the Technische Universität München, Germany  
**Thesis:** *User Interfaces for Keyboard Apps on Stage for Mobile Devices*  
Created a multi-touch iPad app for controlling synthesizers, [blindcontrolapp.com](http://blindcontrolapp.com)

## Scholarships

- 2012 - 2013 **Fulbright scholarship** for studying one academic year at Stanford University, CA

## Publications, Patents and Workshops

- 05/2015 M. Gould, T. Walther. Audio Identification Method, International Patent Application No. PCT/GB2016/051517. Patent pending.
- 06/2014 A. McPherson, X. Xiao, T. Walther. Keyboard Salon. Workshop at *New Interfaces for Musical Expression*, 2014
- 06/2013 T. Walther. Multi-Touch Interface for Blind Real-Time Interaction, US Patent Application No. 61/845,941. Patent pending.
- 05/2013 T. Walther, D. Ismailović, B. Bruegge. Rocking the Keys with a Multi-Touch Interface. In *New Interfaces for Musical Expression*, 2013

## Music

Singer and keyboarder of the pop-rock band Mama Jokes ([soundcloud.com/mamajokes](https://soundcloud.com/mamajokes)), with records available on iTunes and Spotify. Studio singer for Berlin-based producer E-Kreisel. Singer in the Bavarian State Youth Choir (Bayerischer Landesjugendchor) and in Opera performances at Stanford University.