

Curriculum Vitae

CONTACT

Dr.-Ing. Sebastian Jiro Schlecht

International Audio Laboratories Erlangen

Am Wolfsmantel 33

91058 Erlangen, Germany

sebastian.schlecht@audiolabs-erlangen.de



ACADEMIC POSITIONS

- | | |
|-------------------|--|
| 03/2018 – 02/2019 | Postdoctoral Researcher
Perception-Based Spatial Audio Signal Processing
Friedrich-Alexander University Erlangen-Nürnberg
Erlangen, Germany |
| 03/2018 | Visiting Researcher
Acoustics Lab
Aalto University
Espoo, Finland |
| 08/2010 – 02/2019 | Research Consultant (20%)
Department Multimedia Realtime Systems
Fraunhofer Institute for Integrated Circuits
Erlangen, Germany |
| 01/2012 – 09/2017 | Research Assistant (50%)
Perception-Based Spatial Audio Signal Processing
Friedrich-Alexander University Erlangen-Nürnberg
Erlangen, Germany |
| 04/2007 – 06/2010 | Student Assistant
Theoretical Computer Science
University of Trier, Germany |

EDUCATION

- 01/2012 – 09/2016 **PhD in Spatial Audio Signal Processing**
Feedback Delay Networks in Artificial Reverberation and Reverberation Enhancement
Friedrich-Alexander University Erlangen-Nürnberg
Supervisor: Prof. Dr. Emanuël Habets
Graduated with distinction
- 10/2014 – 09/2016 **Music Theory & Ear Training**
Private studies with Prof. Christoph Göbel
University of Music and Theatre, Leipzig, Germany
- 09/2010 – 08/2011 **MSc in Digital Music Processing**
Queen Mary, University of London, England
Scholarship by the German Academic Exchange Service
Graduated with distinction
- 07/2010 **Summer Workshops on Perceptual Audio Coding and Electronic Music Composition**
Centre for Computer Research in Music and Acoustics
Stanford University, California, USA
Funded by the German Academic Exchange Service
- 04/2006 – 07/2010 **Diplom (Combined BSc / MSc) in Applied Mathematics**
University of Trier, Germany
Graduated with distinction
- 01/2009 – 04/2009 **3-month Internship in Japan**
Bosch Corporation, Yokohama, Japan
DA&CAPS Engineering Departement
Supported by the German Academic Exchange Service
- 04/2006 – 07/2007 **Vordiplom (BSc) in Computer Science**
University of Trier, Germany
- 09/2005 – 03/2006 **Studies in Mathematics**
University of the Saarland, Saarbrücken, Germany
- 07/2005 **Abitur (General qualification for university entrance)**
Theodor-Heuss-Gymnasium, Nördlingen, Germany
Grade 1.3 (marks from 1.0 best to 4.0)
- 01/2003 – 07/2003 **School Exchange to Japan**
Meito High School, Nagoya, Japan

SCHOLARSHIPS

- 09/2010 – 08/2011 **German Academic Exchange Service (DAAD)**
1-year M.Sc. scholarship
Queen Mary, University of London, England
- 07/2010 **German Academic Exchange Service (DAAD)**
4-week scholarship for summer workshop
Stanford University, CA, USA
- 01/2009 – 04/2009 **German Academic Exchange Service (DAAD)**
Supporting scholarship for 3-month internship
Bosch Corporation, Yokohama, Japan

AWARDS

- 08/2018 **Best Peer-Reviewed Paper**
Audio quality evaluation in virtual reality: Multiple stimulus ranking with behavior tracking
by Olli Rummukainen, Thomas Robotham, Sebastian J. Schlecht, Axel Plinge, Jürgen Herre, Emanuël A. P. Habets
2018 AES International Conference on Audio for Virtual and Augmented Reality in Redmond, WA, USA
- 09/2018 **Best Paper**
Optimized velvet-noise decorrelator
by Sebastian J. Schlecht, Benoit Alary, Vesa Välimäki, Emanuël A. P. Habets
2018 International Conference on Digital Audio Effects (DAFx) in Aveiro, Portugal

INVITED TALKS

- 11/2018 **Artificial Reverberation**
Ableton AG, Berlin, Germany
- 03/2018 **Feedback Delay Networks - Inside the Matrix**
Acoustics Lab
Aalto University, Espoo, Finland
- 10/2015 **Immersive Audio Signal Processing and Effects**
Convention Audio Engineering Society (AES)
New York, NY, USA

TEACHING

- 10/2018 – 2020 **Thesis Advisor**
Benoit Alary, PhD student at Acoustics Lab under supervision Prof. Vesa Välimäki
Aalto University, Espoo, Finland
- 03/2018 **Virtual Acoustics**
Guest Lecturer in a lecture series of Prof. Frank Wefers
Friedrich-Alexander University Erlangen-Nürnberg, Germany
- 2015 & 2018 **Seminar on Audio Processing**
Supervision of seminar paper
Friedrich-Alexander University Erlangen-Nürnberg, Germany
- 09/2007 – 07/2010 **Student Assistant**
Assistant in theoretical computer science course
University of Trier, Germany

MUSIC & DESIGN POSITIONS

- 09/2018 – 10/2018 **Get Well Soon**
Violin, The Horror European Tour (2018)
- 08/2014 – 12/2017 **Mighty Oaks**
Violin & Keys, European Tours: Higher Place (2017), Dreamers (2017), Golden Road (2014) and Festivals
- 08/2013 – 05/2016 **LötKrft Design Collective**
Founder, Electronics & Interaction Design
- 11/2011 – 07/2017 **David Lemaitre**
Violin & Electronics, European Tours: Aquatics (2011), Valediction (2012), Latitude (2013) and Festivals, La Sud South America Tour (2016)
- 09/2010 – 10/2011 **Sullum Voe**
Violin, Selected concerts: Whitechapel Gallery (London), Centre Pompidou (Paris), Gareth Pugh's Pitti Debut (Florence)
- 07/2006 – 08/2010 **The Shanes**
Violin, Germany Tours: Polka over Serbja (2007), Squandering Youth (2009)
- 01/2007 – 10/2008 **Paul Juon Piano Trio**
Violin
2nd Prize Charles Hennen Concours, Heerlen, Netherland
3rd Prize "Jugend musiziert" national final round

04/1998 – 09/2008

Swabian Youth Symphony Orchestra

Concertmaster, Principal 2nd Violin, Principal Viola

ARTISTIC & DESIGN WORKS

2010 – 2017

Studio Recordings (Selection)

Like Lovers, Everything All The Time Forever, 2019

Charlotte Brandi, The Magician, 2018

Mighty Oaks, Storm, 2017

Fern, Fern, 2017

Der Weg einer Freiheit, Stellar, 2015; Finisterre, 2017

Fayzen, Gerne allein, 2017

Laith Al-Deen, Bleib unterwegs, 2016

A Tale of Golden Keys, Everything Went Down As Planned, 2016

Abby, Welcome Home, 2011; Friends&Enemies, 2013; Hexagon, 2015

Berge, Vor uns die Sintflut, 2015

Nico Suave feat. X. Naidoo, Unvergesslich, 2014

Ray Wilson (Genesis), LiveTracks, 2014

David Lemaitre, Latitude, 2013

Max Prosa, Rangoon, 2013

Marla Blumenblatt, Immer die Boys, 2013

We invented Paris, We Invented Paris, 2011

2013 – 2016

Light & Interaction design with LötKrf

Like Lovers, Lights & Interaction, 2016

We Invented Paris, Lights, 2015

David Lemaitre, Lights & Instruments, 2013

08/2011

Gonda by Ursula Mayer

Original Film Score, Composition & Performance, 2011

01/2011

Pitti Debut by Gareth Pugh

Video & Live Fashion Show, Composition & Performance, 2011

PROGRAMMING

- Matlab (Expert)
- C++, Audio Plugin Development (Advanced)
- PureData/MaxMSP, Ableton Live (Advanced)
- Arduino, L^AT_EX(Intermediate)

CONFERENCES

09/2018	Digital Audio Effects (DAFx) Aveiro, Portugal, Poster
08/2018	Conference Audio Engineering Society (AES) Tokyo, Japan, Talk
09/2017	Digital Audio Effects (DAFx) Edinburgh, UK, Poster
05/2017	Quality of Multimedia Experience (QoMEX) Erfurt, Germany, Poster
03/2017	Conference Audio Engineering Society (AES) Erlangen, Germany, Participant
01/2017	Convention Audio Engineering Society (AES) Berlin, Germany, Participant
10/2016	Ableton Loop Berlin, Germany, Participant
11/2015	Convention Audio Engineering Society (AES) New York, USA, Invited Workshop
09/2015	Conference Audio Engineering Society (AES) Montreal, Canada, Talk
07/2015	Convention Audio Engineering Society (AES) Warsaw, Poland, Talk
10/2012	Convention IEEEI, Eilat Israel, Talk
09/2012	Workshop on Acoustic Signal Enhancement (IWAENC) Aachen, Germany, Poster

PUBLICATIONS

For the selected publications, the journal papers were developed and written by the first author (90%) while Prof. Habets edited the manuscript (10%).

Selected Publications

- [1] S. J. Schlecht and E. A. P. Habets, “Feedback delay networks: Echo density and mixing time,” *IEEE/ACM Trans. Audio, Speech, Lang. Proc.*, vol. 25, no. 2, pp. 374–383, 2017.
- [2] S. J. Schlecht and E. A. P. Habets, “On lossless feedback delay networks,” *IEEE Trans. Signal Process.*, vol. 65, no. 6, pp. 1554–1564, Mar. 2017.
- [3] S. J. Schlecht and E. A. P. Habets, “The stability of multichannel sound systems with time-varying mixing matrices,” *J. Acoust. Soc. Amer.*, vol. 140, no. 1, pp. 601–609, Jul. 2016.

Journals

- [4] B. Alary, A. Politis, S. J. Schlecht, and V. Välimäki, “The directional feedback delay network,” *Journal of the Audio Engineering Society*, submitted, 2018.
- [5] O. S. Rummukainen, S. J. Schlecht, and E. A. P. Habets, “Self-translation induced minimum audible angle,” *J. Acoust. Soc. Amer.*, vol. 144, no. 4, EL340–EL345, Oct. 2018.
- [6] S. J. Schlecht and E. A. P. Habets, “Modal decomposition of feedback delay networks,” *IEEE Trans. Signal Process.*, submitted, 2018.
- [7] S. J. Schlecht and E. A. P. Habets, “Time-varying feedback matrices in feedback delay networks and their application in artificial reverberation,” *J. Acoust. Soc. Amer.*, vol. 138, no. 3, pp. 1389–1398, Sep. 2015.

Conferences

- [8] O. Rummukainen, T. Robotham, S. J. Schlecht, A. Plinge, J. Herre, and E. A. P. Habets, “Audio quality evaluation in virtual reality: Multiple stimulus ranking with behavior tracking,” in *Proc. Audio Eng. Soc. Conf.*, Redmond, WA, USA, 2018, pp. 1–10.
- [9] S. J. Schlecht, B. Alary, V. Välimäki, and E. A. P. Habets, “Optimized velvet-noise decorrelator,” in *Proc. Int. Conf. Digital Audio Effects (DAFx)*, Aveiro, Portugal, 2018, pp. 1–8.
- [10] S. J. Schlecht and E. A. P. Habets, “Sign-agnostic matrix design for spatial artificial reverberation with feedback delay networks,” in *Proc. Audio Eng. Soc. Conf.*, Tokyo, Japan, 2018, pp. 1–10.

- [11] O. Rummukainen, S. J. Schlecht, A. Plinge, and E. A. P. Habets, “Evaluating binaural reproduction systems from behavioral patterns in a virtual reality—A case study with impaired binaural cues and tracking latency,” in *Audio Engineering Society Convention 143*, New York, NY, USA: Audio Engineering Society, Oct. 2017, pp. 1–8.
- [12] O. Rummukainen, S. J. Schlecht, A. Plinge, and E. A. P. Habets, “Evaluation of binaural reproduction systems from behavioral patterns in a six-degrees-of-freedom wayfinding task,” in *Quality of Multimedia Experience (QoMEX), 2017 Ninth International Conference on*, Erfurt, Germany: IEEE, Jun. 2017, pp. 1–3.
- [13] S. J. Schlecht and E. A. P. Habets, “Accurate reverberation time control in feedback delay networks,” in *Proc. Int. Conf. Digital Audio Effects (DAFx)*, Edinburgh, UK, Aug. 2017, pp. 337–344.
- [14] S. J. Schlecht and E. A. P. Habets, “Practical considerations of time-varying feedback delay networks,” in *Proc. Audio Eng. Soc. Conv.*, Warsaw, Poland, May 2015, pp. 1–9.
- [15] S. J. Schlecht and E. A. P. Habets, “Reverberation enhancement systems with time-varying mixing matrices,” in *Proc. Audio Eng. Soc. Conf.*, Montreal, Canada, Jul. 2015, pp. 1–8.
- [16] S. J. Schlecht and E. A. P. Habets, “Connections between parallel and serial combinations of comb filters and feedback delay networks,” in *International Workshop on Acoustic Signal Enhancement (IWAENC)*, Aachen, Germany, 2012, pp. 1–4.
- [17] S. J. Schlecht and E. A. P. Habets, “Reverberation enhancement from a feedback delay network perspective,” in *Convention of Electrical & Electronics Engineers in Israel (IEEEI)*, Eilat, Israel: IEEE, 2012, pp. 1–5.

Patent

- [18] S. J. Schlecht, E. A. P. Habets, A. Silzle, C. Borß, H. Stenzel, and B. Neugebauer, “Apparatus and method for generating output signals based on an audio source signal, sound reproduction system and loudspeaker signal,” WO 2016/071206 A1, 2015.

Thesis

- [19] S. J. Schlecht, “Feedback delay networks in artificial reverberation and reverberation enhancement,” PhD thesis, Erlangen, Germany, Oct. 2017.
- [20] S. J. Schlecht, “Source-filter separation for bowed string instruments and its application for advanced audio effects,” Master’s thesis, London, UK, Aug. 2011.
- [21] S. J. Schlecht, “Options and limits of feedback delay networks for artificial reverberation of audio signals,” Master’s thesis, Trier, Germany, Jun. 2010.