Marin Vogelsang
CV

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ACADEMIC POSITIONS

Massachusetts Institute of Technology — **Cambridge, MA, USA**
Postdoctoral Researcher, Dept. of Brain and Cognitive Sciences — *4/2024 – present*
Postdoc in Prof. Pawan Sinha's lab (as JSPS Fellow for the first 2 years).

EDUCATION

University of Osnabrueck — **Osnabrueck, Germany**
Dr. rer. nat. (summa cum laude) in Cognitive Science — *Awarded 2/2024*
Supervisors: Prof. Gordon Pipa (Osnabrueck) & Prof. Pawan Sinha (MIT).
Dissertation: On early sensory experience in humans and machines.

École Polytechnique Fédérale de Lausanne — **Lausanne, Switzerland**
Second B.Sc. in Computer Science — *9/2020 – 8/2023*

University of Zurich & ETH Zurich — **Zurich, Switzerland**
M.Sc. in Neural Systems & Computation — *9/2017 – 9/2019*

The University of Tokyo — **Tokyo, Japan**
B.Sc. in Biological Sciences — *4/2013 – 3/2017*

FELLOWSHIPS & GRANTS

4/2025 – 3/2026 **Overseas Research Support Grant** (∼13,000 USD) from the Yamada Science Foundation, Japan, for support on research expenses.

4/2024 – 3/2026 **Postdoctoral Fellowship** (∼100,000 USD) from the Japan Society for the Promotion of Science for a postdoctoral stay in Prof. Pawan Sinha's lab at MIT.

HONORS & AWARDS

6/2026 **Selected as Young Scientist for the Lindau Nobel Laureate Meeting** (lindau-nobel.org), a fully funded, week-long program with ∼70 Nobel laureates, Lindau, Germany.

5/2026 **FoVea Travel and Networking Award** (1,000 USD) for participation in the Annual Meeting of the Vision Sciences Society (VSS), St. Pete Beach, USA.

4/2026 **Outstanding Paper Award** for 'Impact of early visual experience on later usage of color cues' (M. Vogelsang et al., Science, 2024) by UJA, Japan.

1/2026 **Sustainable Transformation of Institutional Research Rigor Travel Award** from the Department of Brain and Cognitive Sciences, MIT, USA.

10/2025 **Selected for EECS Rising Star Workshop** (risingstars-eecs.mit.edu), MIT, USA.

10/2025 **Travel Grant for Early Career Researchers** for Timing Research Forum, Tokyo, Japan.

2/2019 **Presenters Travel Grant** (1,000 USD) for participation in the Computational and Systems Neuroscience (Cosyne) Conference, Lisbon, Portugal.

9/2018 – 2/2019 **Graduate Scholarship** (∼7,000 USD) for M.Sc. studies, awarded by the Japan Student Services Organization, Japan.

7/2017 **Junior Investigator Poster Award** for presentation at the 40th Annual Meeting of The Japan Neuroscience Society, Makuhari Messe, Japan.

8/2015 **Best Presentation Prize** for Life Science Research Internship for Undergraduate Students at RIKEN, Japan.

JOURNAL PUBLICATIONS (* = equal contribution)

2026 Ralekar, C.*, **Vogelsang, M.***, Vogelsang, L.*, Kumar, A., Lall, N., Gupta, P., Diamond, S., Ganesh, S., & Sinha, P. Longitudinal changes in nystagmus following late treatment for congenital blindness. *Investigative Ophthalmology & Visual Science*.

2026 Gupta, P., Vogelsang, L., **Vogelsang, M.**, Khemani, N., Jain, M., Lall, N., Verma, D., Ralekar, C., Ganesh, S., & Sinha, P. The role of early visual experience in cross-signal dependency detection. *Developmental Science*.

2025 **Vogelsang, M.**, Vogelsang, L., & Sinha, P. Computationally probing the role of time-limited neuronal plasticity in early visual development. *Developmental Science*, 29(1), e70099.

2025 Sinha, P., Vogelsang, L., **Vogelsang, M.**, Yonas, A., & Diamond, S. The temporal scaffolding of sensory organization. *Annual Review of Psychology*, 77.

2025 **Vogelsang, M.**, Vogelsang, L., Pipa, G., Diamond, S., & Sinha, P. Potential role of developmental experience in the emergence of the parvo-magno distinction. *Communications Biology*, 8(1), 987.

2025 Vogelsang, L.*, Gupta, P.*, **Vogelsang, M.**, Shah, P., Tiwari, K., Verma, D., Yadav, M., Raja, S., Ganesh, S., & Sinha, P. The status of vernier acuity following late sight onset. *Developmental Science*, 28(2), e13616.

2024 Gupta, P., **Vogelsang, M.**, Vogelsang, L., Shah, P., Gilad-Gutnick, S., & Sinha, P. The influence of semantics on long-term visual memory capacity in children and adults. *British Journal of Developmental Psychology*, 42(3), 392-408.

2024 **Vogelsang, M.***, Vogelsang, L.*, Gupta, P.*, Gandhi, T., Shah, P., Swami, P., Gilad-Gutnick, S., Ben-Ami, S., Diamond, S., Ganesh, S., & Sinha, P. Impact of early visual experience on later usage of color cues. *Science*, 384(6698), 907-912.

2024 Vogelsang, L.*, **Vogelsang, M.***, Pipa, G., Diamond, S., & Sinha, P. Butterfly effects in perceptual development: A review of the 'adaptive initial degradation' hypothesis. *Developmental Review*, 71, 101117.

2023 Jarudi, I., Braun, A., **Vogelsang, M.**, Vogelsang, L., Gilad-Gutnick, S., Boix, X., Dixon, W., & Sinha, P. Recognizing distant faces. *Vision Research*, 205, 108184.

2023 Bi, S., Chawariya, A., Ganesh, S., Gupta, P., Huang, Y., Jazayeri, K., Kumar, R., Ralekar, C., Singh, C., Tiwary, A., Vogelsang, L., **Vogelsang, M.**, Yadav, M., & Sinha, P. Scholastic status of congenitally blind children following sight surgery. *International Journal of Special Education*, 37(2), 160. (Alphabetical order except for last author)

2022 **Vogelsang, M.***, Vogelsang, L.*, Diamond, S., & Sinha, P. Prenatal auditory experience and its sequelae. *Developmental Science*, 26(1), e13278.

2022 Gupta, P., Shah, P., Gilad-Gutnick, S., **Vogelsang, M.**, Vogelsang, L., Tiwari, K., Gandhi, T., Ganesh, S., & Sinha, P. Development of visual memory capacity following early-onset and extended blindness. *Psychological Science*, 33(6), 847-858.

CONFERENCE PAPERS & EXTENDED ABSTRACTS

7/2026 Cheon, J., **Vogelsang, M.**, Vogelsang, L., & Sinha, P. Spectral Stratification of Semantic Abstraction in Vision-Language Models. Workshop paper and poster at *ICML 2026 Mechanistic Interpretability Workshop*.

8/2025 Talk **Vogelsang, M.**, Vogelsang, L., & Sinha, P. Examining the potential functional significance of initially poor temporal acuity. Talk and 2-page paper at *Conference on Cognitive Computational Neuroscience (CCN)*, Amsterdam, Netherlands.

8/2025 Vogelsang, L., **Vogelsang, M.**, Gupta, P., Shah, P., Sethi, P., Narang, S., Ganesh, S., & Sinha, P. Gestalt processing in late-sighted children and deep neural networks. Poster and 2-page paper at *Conference on Cognitive Computational Neuroscience*, Amsterdam, Netherlands.

12/2024 **Vogelsang, M.***, Vogelsang, L.*, Pipa, G., Diamond, S., & Sinha, P. Impact of a biomimetic training regimen based on early visual experience on neural network organization and performance. Poster and 5-page paper at *NeurIPS 2024 Workshop on Behavioral Machine Learning*, Vancouver, Canada (presented virtually).

8/2024 Vogelsang, L.*, **Vogelsang, M.***, Pipa, G., Diamond, S., & Sinha, P. An account of the genesis of the parvo- and magnocellular division based on early visual experience. Poster and 2-page paper at *Conference on Cognitive Computational Neuroscience*, Boston, USA.

CONFERENCE ABSTRACTS

5/2026 Talk **Vogelsang, M.**, Vogelsang, L., & Sinha, P. Developmental temporal progression promotes integration and robustness in 3D convolutional neural networks. Talk at *MODVIS (A VSS satellite)*, St. Pete Beach, USA.

5/2026 Talk **Vogelsang, M.**, Vogelsang, L., Gupta, P., Lall, N., Jain, M., Ralekar, C., Ganesh, S., & Sinha, P. Gradual emergence of temporal-order judgments in late-sighted children. Talk at *VSS*, St. Pete Beach, USA.

10/2025 Talk **Vogelsang, M.**, Vogelsang, L., Gupta, P., Narang, S., Sethi, P., Ganesh, S., & Sinha, P. Visual causality detection capabilities in individuals treated for prolonged early-onset blindness. Talk at *Timing Research Forum*, Tokyo, Japan.

8/2025 Talk **Vogelsang, M.**, Vogelsang, L., Gupta, P., Narang, S., Sethi, P., Ganesh, S., & Sinha, P. Rapid emergence of visual causality detection following prolonged early-onset blindness. Talk at *European Conference on Visual Perception*, Mainz, Germany.

7/2025 **Vogelsang, M.**, Vogelsang, L., Diamond, S., & Sinha, P. From degraded inputs to robust sensory cognition: a computational perspective on early perceptual development. Poster at *Annual Meeting of the Cognitive Science Society*, San Francisco, USA (hybrid).

5/2025 Talk **Vogelsang, M.**, Vogelsang, L., Diamond, S., & Sinha, P. Early sensory degradation as an adaptive mechanism in visual development. Talk at *Trends in Psychology Summit*, Harvard University, Cambridge, USA.

11/2024 **Vogelsang, M.**, Vogelsang, L., Pipa, G., Diamond, S., & Sinha, P. On the emergence of the parvo- and magnocellular division: Potential role of early visual experience. Poster at *Object Perception, Attention, & Memory (OPAM) Conference*, New York City, USA.

5/2021 **Vogelsang, M.***, Vogelsang, L.*, Diamond, S., & Sinha, P. On prenatal auditory experience in humans and its relevance for machine hearing. Poster at *International Conference on Learning Representations (ICLR) Workshop* 'Generalization beyond the training distribution in minds and machines', Online.

9/2019 **Ozaki, M.**, Renner, A., & Sandamirskaya, Y. Exploring the parameter space of spiking neural networks for winner-take-all dynamics. Poster at *Bernstein Conference*, Berlin, Germany. (Ozaki = Maiden name).

2/2019 **Ozaki, M.**, & Imai, T. Sparse lateral inhibition mediates robust phase coding in the olfactory bulb. Poster at *Computational and Systems Neuroscience (Cosyne) Conference*, Lisbon, Portugal. (Ozaki = Maiden name).

7/2017 **Ozaki, M.**, Iwata, R., Kimura, T., Murata, Y., & Imai, T. A Network Model for the Phase Coding of an Odor Suggests a Role of Sparse Lateral Inhibition in the Olfactory Bulb. Poster at *The 40th Annual Meeting of The Japan Neuroscience Society*, Makuhari Messe, Japan. (Ozaki = Maiden name).

SELECTED INVITED TALKS

2/2026 **Ellis Lab Meeting**, Stanford University, USA. Title: Potential adaptive benefits of initially degraded visual experience.

10/2025 **Yamaguchi Lab Workshop**, Chuo University, Japan. Title: Butterfly effects in perceptual development: on the role of initially degraded visual experience.

12/2023 **Kietzmann Journal Club**, University of Osnabrueck, Germany. Title: On the adaptive initial degradation hypothesis.

TEACHING EXPERIENCE

Ongoing **Instructor for Universal AI module 'AI & Neuroscience'**: Selected by MIT Open Learning to develop a course at the intersection of AI and neuroscience. Funds received: USD 15,000. Main instructors: Marin Vogelsang, Lukas Vogelsang, and Pawan Sinha.

2026 **Guest Lecturer for 'Machine-Motivated Human Vision'**: Presented two guest lectures on deep neural networks for course at MIT.

2025 **Co-Organizer and Instructor for 'Developmental Neuroscience-Inspired Machine Learning'**: Tutorial at the International Conference on Pattern Recognition and Machine Intelligence (PReMI), Delhi, India. Co-organized with Lukas Vogelsang and Chetan Ralekar.

2025 **Co-Instructor for 'Machine-Motivated Human Vision'**: Co-instructed course at MIT, focused on the intersection of human and machine vision. Main instructor: Pawan Sinha.

2025 **Guest Lecturer for 'Vision in Art and Neuroscience'**: Guest lecture 'On spatiotemporal processing & typical, atypical, and computational development' for course at MIT.

MENTORING

2025+ **M.Sc. Student Supervision** (Jeonghwan Cheon, KAIST): Remote research collaboration.

2025+ **B.Sc. Student Supervision** (Hunter Liao, MIT): MIT UROP program.

2021 **High School Student Supervision** (Youqi Huang, MIT): Boston University Rise program.

PROFESSIONAL SERVICE

2025+ **Reviewer** for Cognition; Conference on Cognitive Computational Neuroscience; Conference on Pattern Recognition and Machine Intelligence: Doctoral Colloquium.

6/2018 – 9/2019 **Student Representative** of the Institute of Neuroinformatics at the University of Zurich & ETH Zurich, Switzerland.

OUTREACH

2025 **Podcast Episode** about research on human visual neuroscience as part of the podcast 'NeuroRadio' (in Japanese).

2025 **Outreach Lecture** on research in the brain and cognitive sciences for Japanese high school students visiting MIT.

MEDIA

2025 **MIT News**: News story 'Babies' poor vision may help organize visual brain pathways'.

2024 **Yale Scientific Magazine**: News Story 'Hue's the Thing'

2024 **Science Protostar**: Featured as Protostar, selected each week by Science Magazine.

2024 **MIT News**: News story 'Study explains why the brain can robustly recognize images, even without color' (also in Neuroscience News, Science Daily; independent coverage by elDiario, The Hindu).

2022 **MIT News**: News story 'Early sound exposure in the womb shapes the auditory system' (also in MIT Technology Review, Today UK News, SciTech Daily).

ADDITIONAL RESEARCH EXPERIENCE

12/2019 – 5/2020 **IBM Research Zurich** (Zurich, Switzerland): Research Intern in the Computational Systems Biology Lab. Work on computational biology.

5/2017 – 8/2017 **Kyushu University** (Fukuoka, Japan): Research Intern at the Graduate School of Medical Sciences. Work on computational neuroscience.

2/2016 – 3/2016 **RIKEN** (Kobe, Japan): Research Intern at the Center for Developmental Biology. Work on computational neuroscience.

4/2015 – 5/2017 **The University of Tokyo** (Tokyo, Japan): Research Assistant at the Institute of Industrial Sciences. Work on computational neuroscience.

SKILLS & LANGUAGES

Coding **Python** (advanced), **C/C++** (advanced), **Matlab** (advanced), **Java** (advanced), **Scala** (intermediate), **Assembly** (beginner).

Languages **Japanese** (native), **English** (fluent; C1), **French** (beginner; B1), **German** (A1)

Last updated: June 2026