Edward S. Ly, Ph.D.

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Summary

- ✓ A disabled but innovative and socially-conscious free software engineer and researcher with over ten years of all-around development experience.

- ✓ Able to both utilize and create state-of-the-art software with a minimalist, creative, and detail-oriented mindset.

- ✓ Proficient at quickly gaining new skills and knowledge on-the-fly (both hard and soft, inside and outside of computer science) while remaining proactive in meeting deadlines and delivering results.

- ✓ Experienced working both independently with minimal supervision and remotely with international team members across time zones.

Areas of Expertise

Audio Programming - Data Analysis & Visualization - Digital Signal Processing - Full-Stack Web Applications - Game Development - Genetic & Evolutionary Algorithms - Machine Learning - Task Automation & Scripting - Web Hosting

Professional Experience

Software Engineer, *Nextcloud GmbH* **Stuttgart, Germany** *07/2024 – Present*
- Developed, maintained, and took ownership of key server and infrastructure applications within the free/libre Nextcloud ecosystem that serves millions of users worldwide.
- Delegated and resolved technical support tickets in a timely manner for enterprise customers located around the world.
- Delivered public talks on various topics including Nextcloud development and neurodiversity awareness in multiple open source conferences across North America and Europe.

Software Developer, *Altonimbus Entertainment* **Portland, Oregon, USA** *10/2023 – Present*
- Accelerated the repair, maintenance, and upgrade of web server and network infrastructure by automating previously manual tasks.
- Filled critical roles in operations and customer service during Kumoricon, a Japanese pop culture convention with 10,000+ yearly paid attendees.

Software Engineer (Back-End), *Eyes, JAPAN Co. Ltd.* **Aizu-Wakamatsu, Fukushima, Japan** *10/2018 – 09/2023*
- Consistently met deadline and client requirements in the development of custom full-stack web solutions and data analytics.
- Acquired real-world business and leadership experience in a hybrid IT consulting startup environment with international team members spanning five continents.

Engineering Intern, *We Vote USA* **Oakland, California, USA** *07/2017 – 09/2018*
- Developed key front-end and back-end features in the early years of We Vote, an open-source social media platform that brings ballot information to the voters in order to increase voter turnout.
- Acquired non-profit, public-sector experience in a fully remote work environment while continuing to meet deadlines and deliver consistent results.

Xtern Bootcamp, *powered by Techpoint* **Indianapolis, Indiana, USA** *05/2016 – 07/2016*
- Selected as one of 25 students for the inaugural Xtern Bootcamp.
- Intensive 10-week training program built to close the skills gap between the CS degree and industry demand.
- Project-based curriculum focused on the MEAN stack.

Skills

- **Programming Languages:** C, C++, HTML/CSS, JavaScript, LaTeX, MATLAB, PHP, Python, R, Ruby, Scheme, Shell

- **Version Control Systems:** Git

- **Music/Audio Programming Languages:** FAUST, LilyPond, Max/MSP, Pure Data

- **Web Frameworks:** Angular, Django, Electron, jQuery, Hugo, Quasar, React (Native), Ruby on Rails, Vue.js, WordPress

- **Operating Systems:** Arch Linux, Debian GNU/Linux, macOS, Ubuntu, Windows

Education

Ph.D. | Comp. Sci. and Engineering, *University of Aizu*   **Aizu-Wakamatsu, Fukushima, Japan** *10/2020 − 03/2024*
- 4.00 GPA
- Doctoral Dissertation: *Applications of Evolutionary Algorithms to Digital Audio Signal Processing*

M.Sc. | Comp. Sci. and Engineering, *University of Aizu*   **Aizu-Wakamatsu, Fukushima, Japan** *10/2018 − 09/2020*
- 3.86 GPA
- Master's Thesis: *Genetic Reverb: Synthesizing Artificial Reverberant Fields Via Genetic Algorithms*

B.A. | Comp. Sci. and Mathematics, *Earlham College*   **Richmond, Indiana, USA** *08/2014 − 12/2016*
- 3.93 GPA, 4.00 Computer Science Major GPA, Phi Beta Kappa (Delta Chapter of Indiana)
- Senior Capstone Thesis: *Open-Source Gesture Recognition for Virtual Orchestra Conducting Using the Kinect*

Publications

Journal Articles
[1] **E. Ly** and J. Villegas, "Cartesian Genetic Programming Parameterization in the Context of Audio Synthesis," *IEEE Signal Process. Lett.*, vol. 30, pp. 1077–1081, Aug. 2023. DOI: `10.1109/LSP.2023.3304198`.

[2] **E. Ly** and J. Villegas, "Generating Artificial Reverberation via Genetic Algorithms for Real-Time Applications," *Entropy*, vol. 22, no. 11, pp. 1–19, Nov. 2020. DOI: `10.3390/e22111309`.

Conference Proceedings
[3] P. Kudry, **E. Ly**, K. M. Diaz España, C. Ming-Jung, M. Soga, and D. Roy, "Metaverse in Education for Students with Disabilities," in *Proc. 2nd Int. Conf. Ent. Tech. and Manag. (ICETM2023)*, D. Roy and G. Fragulis, Eds., AIP Publishing, Nov. 2023, pp. 1–9. DOI: `10.1063/5.0182107`.

[4] **E. Ly** and J. Villegas, "Digital Filter Design via Recurrent Cartesian Genetic Programming," in *Proc. 2023 IEEE 13th Int. Wkshp. Comput. Int. and Appl. (IWCIA)*, Hiroshima, Japan: IEEE, Nov. 2023, pp. 7–12. DOI: `10.1109/IWCIA59471.2023.10335891`.

[5] **E. Ly** and J. Villegas, "Additive Synthesis via Recurrent Cartesian Genetic Programming in FAUST," in *Proc. 153rd Audio Eng. Soc. Conv.*, New York, Oct. 2022, pp. 1–7. [Online]. Available: `https://www.aes.org/e-lib/browse.cfm?elib=21954`.

[6] **E. Ly** and J. Villegas, "Genetic Reverb: Synthesizing Artificial Reverberant Fields via Genetic Algorithms," in *Proc. 9th Int. Conf. AI in Music, Sound, Art and Design (EvoMUSART 2020)*, J. Romero, A. Ekárt, T. Martins, and J. Correia, Eds., Cham: Springer, Apr. 2020, pp. 90–103. DOI: `10.1007/978-3-030-43859-3_7`.

Awards & Certifications

Travel Grant, *University of Aizu*	*10/2022*
SAISUA Scholarship, *Support Association for International Students of the University of Aizu*	*04/2020 − 09/2020*
AES Student Competition: MATLAB Plugin Finalist, *Mathworks/Audio Engineering Society*	*10/2019*
Travel Grant, *Mathworks*	*10/2019*
SAISUA Scholarship, *Support Association for International Students of the University of Aizu*	*10/2018 − 03/2019*
IndyGo/Pacers Bikeshare Challenge Finalist, *#indycivichack 2016 Hackathon*	*06/2016*
Benjamin A. Gilman International Scholarship, *US Department of State*	*08/2013 − 05/2014*

Volunteer Experience

Competition Management Volunteer (Golf), *Special Olympics World Games Berlin 2023*	**Berlin, Germany**	*06/2023*
Event Services Team Leader, *Tokyo 2020 Paralympic Games*	**Tokyo, Japan**	*08/2021 − 09/2021*
Venue Technology Team Member, *Tokyo 2020 Olympic Games*	**Tokyo, Japan**	*06/2021 − 07/2021*