Ricardo Andres Diaz Rincon

Summary

I'm a full-stack developer. I graduated with Honors in Computer Systems Engineering from Universidad del Valle in Cali, Colombia. During my time at this institution, I was a Research Assistant at the CAMALEON Research Group. My research has focused on Natural Language Processing, Brain-Computer Interfaces, EEG Signal Processing, Computational Neuroscience, Human-Computer Interaction, and Artificial Intelligence. My previous work, which aimed to create Music and Generative Art from brain activity, has been presented at the University of Brasilia and the Etruscan Museum in Rome.

Scientific Interests

I am interested in the intersection between science and art. This is why I have tried different approaches whose goal is to depict human beings' uniqueness by means of their brain activity, allowing users to create different art pieces without them being artists. My scientific interests also focus on Natural Language Processing and improving the life quality of human beings through BCI devices and novel computational techniques. This involves Deep Learning for EEG signals, speech decoding from neural activity (Speech impairment), spinal cord injury and stroke rehabilitation, neuroprosthetics and Brain-Art therapy in the treatment of patients with dementia.

Professional Experience

Full-Stack Developer 10/2020 – Present
Scientific Colombia Program, Universidad del Rosario

- Developing economical experiments in Django to characterize the behavior of informal social-economic agents in Colombia.

Full-Stack Developer 02/2019 – 07/2020
Vice-Rectory of Research, Universidad del Valle

- Implementation and design of a web-based interactive game that allows teaching Colombian History to children in visual diversity.

Full-Stack Developer 06/2018 – 12/2018
CINARA Institute, Universidad del Valle

- Implementation and design of the Agua Conference website.

Computer Repair Services 02/2011 – 07/2015
Shekina Cybercafé

- Computer hardware repairing/maintenance.

Research Experience

Deep Learning Research Engineer 04/2019 – Present
Ed Kravitz Lab, Harvard Medical School

- Collaboration with Dr. Caroline Palavicino-Maggio. Training and developing deep learning algorithms that will enable the study of multi-dimensional phenotypic differences in social behavior for significantly improved quantification and analysis of aggression in female Drosophila (fruit fly).
- Using DeepLabCut and Residual Neural Networks (ResNet) for multi-animal pose estimation.

Research Assistant 02/2018 – 07/2020
CAMALEON Research Group, Universidad del Valle

- Data Analysis.
- Programming.
- Encephalographic Signals Processing.
- Collaboration with faculty to develop publications.

Teaching Experience

- **Teaching Assistant.** Linear Algebra. Fall, Summer, Spring 2016 - 2018.
- **Teaching Assistant.** Mathematics. Summer 2017.

Education

BSc. Computer Systems Engineering 02/2015 – 08/2020
Universidad del Valle, Cali (Colombia).
Thesis with **Summa Cum Laude Distinction**.

Contact

+57 3146965740 / 3059171859

ricardoandres.propio@gmail.com

Google Scholar

ResearchGate

LinkedIn

ORCID iD

GitHub Profile

Website

Technical Skills

Back-End

- Python: ★★★★★
- Django: ★★★★★
- JavaScript: ★★★★☆
- Node.js: ★★★★☆
- PHP: ★★★☆☆
- C++: ★★★☆☆
- C#: ★★★☆☆

Front-End

- HTML5/CSS3: ★★★★★
- Tailwind CSS: ★★★★★
- Bootstrap: ★★★★★
- React.js: ★★★★☆
- Vue.js: ★★★★☆
- P5.js: ★★★☆☆

Deployment

- Heroku: ★★★★★
- AWS: ★★★★☆
- Firebase: ★★★☆☆

Databases

- PostgreSQL: ★★★★★
- MongoDB: ★★★★☆

Bootcamps

Online Summer School Student 07/2020
Neuromatch Academy.
Computational Neuroscience Summer School covering:
Modelling, Statistical Analysis, Dimensionality Reduction, Bayesian Statistics, Linear Systems, Decision Making, Optimal Control, Reinforcement Learning, Neurons Modeling, Dynamic Networks, Deep Learning.

Courses

2020. Coursera. Introduction to HTML5.
2014. Coursera. Programming for Everybody (Python).

Journal Papers

2020. Diaz Rincon, R. A. Towards Brain Computer Interfaces and Generative Art. GASATHJ (Generative Art Science and Technology Hard Journal). https://www.gasathj.com/tiki-read_article.php?articleId=76.
2019. Diaz Rincon, R. A., Reyes Vera, J. M., & Rodriguez C, P. J. Generando música a través de la Actividad Cerebral. Brazilian Journal of Development, 5(6), 5375–5388. https://doi.org/10.34117/bjdv5n6-077.

Conference Papers

2019. Diaz Rincon, R. A., Reyes Vera, J. M., & Rodriguez C, P. J. An approach to Generative Art from Brain Computer Interfaces. In Celestino Soddu (Ed.), XXII Generative Art Conference - GA2019 (pp. 332–343). Retrieved from http://www.generativeart.com/GA2019_web/50_RicardoDiaz_168x240.pdf.
2018. Diaz Rincon, R. A., Reyes Vera, J. M., & Rodriguez C, P. J. Generando música a través de la Actividad Cerebral. Nuevas Ideas en Informática Educativa, 14, 600–605. http://www.tise.cl/Volumen14/TISE2018/600.pdf.

Conference Presentations

2019. XXII Generative Art Conference. Etruscan National Museum of Villa Giulia. Rome, Italy. An Approach to Generative Art from Brain Computer Interfaces.
2018. TISE 2018. University of Brasilia. Brasilia, Brazil. Generando música a partir de la actividad cerebral.

Awards

2019. Universidad del Valle. Travel grant. Amount: $1.727.280 COP (482 USD).
2019. Universidad del Valle. Travel grant. Amount: $828.000 COP (231 USD).
2018. Universidad del Valle. Travel grant. Amount: $781.242 COP (218 USD).

Committees

2018 - Present. Brazilian Journal of Development. Editorial Board. https://www.brazilianjournals.com/index.php/BRJD/about/editorialTeam

Invited Talks

2020. Otree Crash course (In Spanish). Videos & GitHub Repository
2020. Introduction to Brain Computer Interfaces. Universidad del Valle (In Spanish). https://www.youtube.com/watch?v=RhW_uWIKyZQ
2020. Generating music and generative art from Brain Computer Interfaces. Universidad del Valle (In Spanish).
2019. What are BCI devices and what can we do with them? Universidad del Valle (In Spanish).

Media Coverage

2021. Thoughts on how to create more supportive, equitable, and engaging environments in Academia. https://werepstem.com/2021/02/08/supporting-black-scientists-year-round/

Language Certifications

2021. TOEFL iBT. Score: 105/120 (C1 Proficient).
2021. EF SET English Certificate 79/100 (C2 Proficient). https://www.efset.org/cert/LDyM2X

Languages

Spanish (Native): ★★★★★
English (Fluent): ★★★★★
Portuguese (Proficient): ★★★★☆
German (Intermediate): ★★★☆☆

Managerial Skills

Team Leadership: ★★★★★
UI/UX Enhancement: ★★★★☆
Agile Methodology: ★★★☆☆