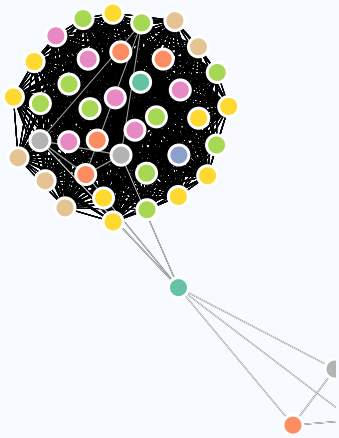
AARON COYNER, PHD(C)

PhD Candidate, Division of Bioinformatics and Computational Biomedicine, Department of Medical Informatics and Clinical Epidemiology

Researcher, Casey Eye Institute

Oregon Health & Science University

My research is centered around the detection and prediction of retinopathy of prematurity using a deep learning approach.



View this CV online with links at *aaroncoyner.github.io/cv*

EDUCATION

Current | 2016
PhD, Bioinformatics and Computational Biomedicine
Oregon Health & Science University — Portland, OR
- Dissertation: Machine Learning for Disease Detection and Prediction in Retinopathy of Prematurity

2014 | 2012
BS, Chemistry
Pacific Lutheran University — Tacoma, WA
- Thesis: Characterization of a Novel Long-chain Polymer Electrolyte

2012 | 2010
AS, Biology/Chemistry
Pierce Community College — Lakewood, WA

CODE REPOSITORIES

Current | 2020
ready-for-r-labs[1]
Oregon Health & Science University — Portland, OR
- Notebooks for Ready4R

Current | 2019
irop-iqa[2]
Oregon Health & Science University — Portland, OR
- Automated fundus image quality assessment tool for use in retinopathy of prematurity

Current | 2019
ml-interpretability[3]
Oregon Health & Science University — Portland, OR
- Black box interpretability in R for Data Analytics

Current | 2019
dissertate-ohsu[4]
Oregon Health & Science University — Portland, OR
- Materials for writing a dissertation at Oregon Health & Science University in R Markdown

CONTACT

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aaron_coyner
github.com/aaroncoyner
aaroncoyner.github.io
linkedin

LANGUAGE SKILLS

- R
- Python
- Bash
- SQL
- JavaScript

Last updated on 2020-07-16.

2018

machine-learning[5]

- Personal code repository for machine learning methods implemented in Python.

2018 | 2017

sleep-data-aligner[6]

Oregon Health & Science University — Portland, OR

- File-combining software for Harvard sleep-quality research group.

PATENTS

Current | 2018

Systems, Devices, and Methods for Identifying Plus Disease Using Deep Convolutional Neural Networks

Oregon Health & Science University — Portland, OR

- Chiang MF, Campbell JP, Ostmo S, Chan RVP, Kalpathy-Cramer J, Brown JM, Erdogmus D, Ioannidis S, **Coyner AS**

PEER-REVIEWED PUBLICATIONS

2020

Aggressive Posterior Retinopathy of Prematurity: Clinical and Quantitative Imaging Features in a Large North American Cohort

Ophthalmology

- Bellsmith KN, Brown J, Kim SJ, Goldstein IH, **Coyner AS**, Ostmo S, Gupta K, Chan RVP, Kalpathy-Cramer J, Chiang MF, Campbell JP

2020

Introduction to Machine Learning, Neural Networks, and Deep Learning[7]

Translational Vision Science and Technology

- Choi RY, **Coyner AS**, Kalpathy-Cramer J, Chiang MF, Campbell JP

2019

Automated Fundus Image Quality Assessmentin Retinopathy of Prematurity Using Deep Convolutional Neural Networks[8]

Ophthalmology Retina

- **Coyner AS**, Swan R, Campbell JP, Ostmo S, Brown JM, Kalpathy-Cramer J, Kim SJ, Jonas KE, Chan RVP, Chiang MF

2019

Demystifying the Jargon: The Bridge between Ophthalmology and Artificial Intelligence[9]

Ophthalmology Retina

- **Coyner AS**, Campbell JP, Chiang MF

2018

Deep Learning for Image Quality Assessment of Fundus Images in Retinopathy of Prematurity[10]

AMIA Annual Symposium Proceedings

- **Coyner AS**, Swan R, Brown JM, Kalpathy-Cramer J, Kim SJ, Campbell JP, Jonas KE, Ostmo S, Chan RVP, Chiang MF

2018 **Scleral Pits in Choroideremia: Implications for Retinal Gene Therapy**[11]

Retina

- Al-Qahtani AA, Ba-Ali S, Alabduljalil T, **Coyner AS**, Patel RC, Weleber RG, Girach A, Christensen SK, Larsen M, Pennesi ME, Yang P

2018 **The Role of ERK1/2 Activation in Sarpogrelate-Mediated Neuroprotection**[12]

Investigative Ophthalmology & Visual Science

- Ku CA, Ryals RC, Jiang D, **Coyner AS**, Weller KK, Sinha W, Robb BM, Yang P, Pennesi ME

2017 **Long-term Characterization of Retinal Degeneration in Royal College of Surgeons Rats Using Spectral-Domain Optical Coherence Tomography**[13]

Investigative Ophthalmology & Visual Science

- Ryals RC, Andrews MD, Datta S, **Coyner AS**, Fischer CM, Wen Y, Pennesi ME, McGill TJ

2016 **Retinal Neuroprotective Effects of Flibanserin, an FDA-Approved Dual Serotonin Receptor Agonist-Antagonist**[14]

PLoS One

- **Coyner AS**, Ryals RC, Ku CA, Fischer CM, Patel RC, Datta S, Yang P, Wen Y, Hen R, Pennesi ME

2015 **Sarpogrelate, a 5-HT2A Receptor Antagonist, Protects the Retina From Light-Induced Retinopathy**[15]

Investigative Ophthalmology & Visual Science

- Tullis BE, Ryals RC, **Coyner AS**, Gale MJ, Nicholson A, Ku CA, Regis D, Sinha W, Datta S, Wen Y, Yang P, Pennesi ME

CONFERENCE PRESENTATIONS

2018 **Deep Learning for Image Quality Assessment of Fundus Images in Retinopathy of Prematurity**

American Medical Informatics Association — San Francisco, CA

- **Coyner AS**, Swan R, Brown JM, Kalpathy-Cramer J, Kim SJ, Campbell JP, Jonas KE, Ostmo S, Chan RVP, Chiang MF

2018 **Deep Learning for Image Quality Assessment of Fundus Images in Retinopathy of Prematurity**

Association for Research in Vision and Ophthalmology — Honolulu, HI

- **Coyner AS**, Swan R, Brown JM, Kalpathy-Cramer J, Kim SJ, Campbell JP, Jonas KE, Ostmo S, Chan RVP, Chiang MF

2017 **Automated Image Quality Assessment for Fundus Images in Retinopathy of Prematurity**

American Medical Informatics Association — Washington, DC

- **Coyner AS**, Swan R, Brown JM, Kalpathy-Cramer J, Kim SJ, Campbell JP, Jonas KE, Ostmo S, Chan RVP, Chiang MF

2017

Automated Image Quality Assessment for Fundus Images in Retinopathy of Prematurity

Association for Research in Vision and Ophthalmology — Baltimore, MD

- Coyner AS, Swan R, Brown JM, Kalpathy-Cramer J, Kim SJ, Campbell JP, Jonas KE, Ostmo S, Chan RVP, Chiang MF

2016

Flibanserin, a FDA approved dual serotonin receptor agonist-antagonist, provides retinal neuroprotection from light induced damage

Association for Research in Vision and Ophthalmology — Denver, CO

- Coyner AS, Ryals RC, Ku CA, Datta S, Pennesi ME

TEACHING AND WORK EXPERIENCE

Current | 2018

Teaching Assistant

Oregon Health & Science University — Portland, OR

- BMI 669: Data Analytics
- BMI 507: Ready4R
- CS 659: Machine Learning
- MATH 630: Probability & Statistical Inference for Scientists and Engineers
- BSTA 525: Introduction to Biostatistics

Current | 2016

NLM Predoctoral Fellow, Division of Bioinformatics and Computational Biomedicine

Oregon Health & Science University — Portland, OR

- Chiang Lab

2019

Mentored Teaching

Oregon Health & Science University — Portland, OR

- BMI 665: Bioinformatics Programming and Scripting
- BMI 669: Data Analytics

2016 | 2014

Research Assistant II

Oregon Health & Science University — Portland, OR

- Penessi Lab

2012 | 2011

Research Assistant I

Pacific Lutheran University — Tacoma, WA

- Waldow Lab

RELEVANT COURSEWORK

2018

BMI 602: Fundamentals of Digital Image and Video Processing[16]

Oregon Health & Science University — Portland, OR

2018

BMI 602: Neural Networks for Machine Learning[17]

Oregon Health & Science University — Portland, OR

2018 **BMI 635: Management and Processing of Large-Scale Data**[18]
Oregon Health & Science University — Portland, OR

2018 **BMI 667: Network Science and Biology**[19]
Oregon Health & Science University — Portland, OR

2017 **BMI 651: Statistical Methods**[20]
Oregon Health & Science University — Portland, OR

2017 **BMI 669: Data Analytics**[21]
Biomedical Informatics, Oregon Health & Science University — Portland, OR

2017 **CS 659: Machine Learning**[22]
Biomedical Informatics, Oregon Health & Science University — Portland, OR

2017 **MATH 630: Probability and Statistical Inference for Scientists and Engineers**[23]
Biomedical Informatics, Oregon Health & Science University — Portland, OR

2016 **BMI 650: Algorithms**[24]
Oregon Health & Science University — Portland, OR

VOLUNTEER EXPERIENCE

2017 | 2014 **Casey Outreach Van**
Ophthalmic Assistant — Portland, OR

2013 **VIDA Volunteer Services**
Dental Assistant — Costa Rica; Nicaragua

2012 | 2011 **Guide Dogs for the Blind**
Puppy Raiser — Tacoma, WA

LINKS

1: https://github.com/laderast/ready_for_r_labs
2: https://github.com/aaroncoyner/irop-iqa
3: https://github.com/aaroncoyner/ml-interpretability
4: https://github.com/aaroncoyner/dissertate-ohsu
5: https://github.com/aaroncoyner/machine-learning
6: https://github.com/aaroncoyner/sleep-data-aligner
7: https://tvst.arvojournals.org/article.aspx?articleid=2762344
8: https://pubmed.ncbi.nlm.nih.gov/31044738/
9: https://pubmed.ncbi.nlm.nih.gov/31014678/
10: https://pubmed.ncbi.nlm.nih.gov/30815164/
11: https://pubmed.ncbi.nlm.nih.gov/29160785/
12: https://pubmed.ncbi.nlm.nih.gov/29368005/
13: https://pubmed.ncbi.nlm.nih.gov/28253400/
14: https://pubmed.ncbi.nlm.nih.gov/27447833/

15. https://pubmed.ncbi.nlm.nih.gov/26200496/
16. https://www.coursera.org/learn/digital
17. https://www.coursera.org/learn/neural-networks-deep-learning
18. https://ohsu.campusconcourse.com/view_syllabus?course_id=15211&public_mode=1
19. https://ohsu.campusconcourse.com/view_syllabus?course_id=15217&public_mode=1
20. https://ohsu.campusconcourse.com/view_syllabus?course_id=7969
21. https://ohsu.campusconcourse.com/view_syllabus?course_id=18686
22. https://www.ohsu.edu/school-of-medicine/csee/machine-learning
23. https://www.ohsu.edu/school-of-medicine/csee/data-science
24. https://ohsu.campusconcourse.com/view_syllabus?course_id=13458&public_mode=1