

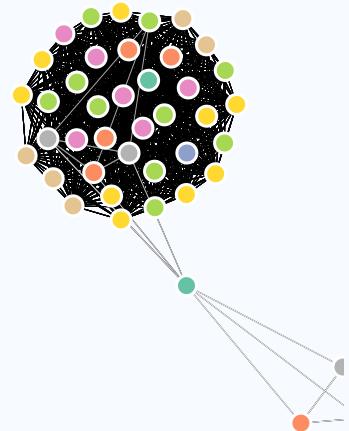
AARON COYNER, PHD(C)

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.



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

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

CONTACT

✉ coyner@ohsu.edu

🐦 [@aaron_coyner](https://twitter.com/aaron_coyner)

🔗 github.com/aaroncoyner

🔗 aaroncoyner.github.io

🔗 [linkedin](https://www.linkedin.com/in/aaroncoyner/)

CODE REPOSITORIES

Current
2020

- **ready-for-r-labs¹**

Oregon Health & Science University

📍 Portland, OR

- Notebooks for Ready4R
- Collaboration with Ted Laderas²

Current
2019

- **irop-iqa³**

Oregon Health & Science University

📍 Portland, OR

- Automated fundus image quality assessment tool for use in retinopathy of prematurity
- Maintainer

Current
2019

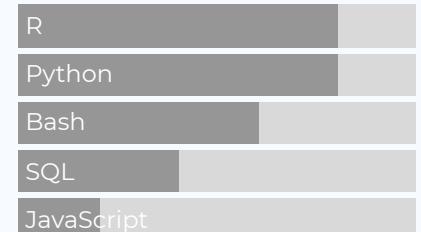
- **ml-interpretability⁴**

Oregon Health & Science University

📍 Portland, OR

- Black box interpretability in R for Data Analytics
- Maintainer

LANGUAGE SKILLS



| | |
|----------------------|--|
| Current 2019 | <ul style="list-style-type: none"> ● dissertate-ohsu⁵ Oregon Health & Science University 📍 Portland, OR <ul style="list-style-type: none"> • Materials for writing a dissertation at Oregon Health & Science University in R Markdown • Forked from Tyson Barrett⁶ |
| 2018 | <ul style="list-style-type: none"> ● machine-learning⁷ <ul style="list-style-type: none"> • Personal code repository for machine learning methods implemented in Python. • Maintainer |
| 2018 2017 | <ul style="list-style-type: none"> ● sleep-data-aligner⁸ Oregon Health & Science University 📍 Portland, OR <ul style="list-style-type: none"> • File-combining software for Harvard sleep-quality research group. • Course collaboration with Connor Smith⁹ and Sean Babcock¹⁰ |

☰ PATENTS

| | |
|----------------------|---|
| Current 2018 | <ul style="list-style-type: none"> ● Systems, Devices, and Methods for Identifying Plus Disease Using Deep Convolutional Neural Networks Oregon Health & Science University 📍 Portland, OR <ul style="list-style-type: none"> • Chiang MF, Campbell JP, Ostmo S, Chan RVP, Kalpathy-Cramer J, Brown JM, Erdogmus D, Ioannidis S, Coyner AS |
|----------------------|---|

☰ PEER-REVIEWED PUBLICATIONS

| | |
|------|--|
| 2020 | <ul style="list-style-type: none"> ● Aggressive Posterior Retinopathy of Prematurity: Clinical and Quantitative Imaging Features in a Large North American Cohort Ophthalmology |
| 2020 | <ul style="list-style-type: none"> ● Introduction to Machine Learning, Neural Networks, and Deep Learning¹¹ Translational Vision Science and Technology |
| 2019 | <ul style="list-style-type: none"> ● Automated Fundus Image Quality Assessment in Retinopathy of Prematurity Using Deep Convolutional Neural Networks¹² Ophthalmology Retina <ul style="list-style-type: none"> • Coyner AS, Swan R, Campbell JP, Ostmo S, Brown JM, Kalpathy-Cramer J, Kim SJ, Jonas KE, Chan RVP, Chiang MF • MOST DOWNLOADED PEDIATRIC OPHTHALMOLOGY ARTICLE OF 2020 |

- 2019 ● **Demystifying the Jargon: The Bridge between Ophthalmology and Artificial Intelligence¹³**
Ophthalmology Retina
• Coyner AS, Campbell JP, Chiang MF
- 2018 ● **Deep Learning for Image Quality Assessment of Fundus Images in Retinopathy of Prematurity¹⁴**
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 Therapy¹⁵**
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 Neuroprotection¹⁶**
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 Tomography¹⁷**
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-Antagonist¹⁸**
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 Retinopathy¹⁹**
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 
 - 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 
 - Chiang Lab
- 2019
- **Mentored Teaching**
Oregon Health & Science University 
 - BMI 665: Bioinformatics Programming and Scripting
 - BMI 669: Data Analytics
- 2016 | 2014
- **Research Assistant II**
Oregon Health & Science University 
 - Penessi Lab

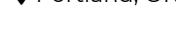
2012
|
2011

- **Research Assistant I**
Pacific Lutheran University
• Waldow Lab



RELEVANT COURSEWORK

- 2018 ● **BMI 602: Fundamentals of Digital Image and Video Processing²⁰**
Oregon Health & Science University
- 2018 ● **BMI 602: Neural Networks for Machine Learning²¹**
Oregon Health & Science University
- 2018 ● **BMI 635: Management and Processing of Large-Scale Data²²**
Oregon Health & Science University
- 2018 ● **BMI 667: Network Science and Biology²³**
Oregon Health & Science University
- 2017 ● **BMI 651: Statistical Methods²⁴**
Oregon Health & Science University
- 2017 ● **BMI 669: Data Analytics²⁵**
Biomedical Informatics, Oregon Health & Science University
- 2017 ● **CS 659: Machine Learning²⁶**
Biomedical Informatics, Oregon Health & Science University
- 2017 ● **MATH 630: Probability and Statistical Inference for Scientists and Engineers²⁷**
Biomedical Informatics, Oregon Health & Science University
- 2016 ● **BMI 650: Algorithms²⁸**
Oregon Health & Science University



VOLUNTEER EXPERIENCE

- 2017 | 2014 ● **Casey Outreach Van**
Ophthalmic Assistant
- 2013 ● **VIDA Volunteer Services**
Dental Assistant
- 2012 | 2011 ● **Guide Dogs for the Blind**
Puppy Raiser



LINKS

1: https://github.com/laderast/ready_for_r_labs

2: <http://laderast.github.io/>

3: <https://github.com/aaroncoyner/irop-iqa>
4: <https://github.com/aaroncoyner/ml-interpretability>
5: <https://github.com/aaroncoyner/dissertate-ohsu>
6: <https://tysonbarrett.com/>
7: <https://github.com/aaroncoyner/machine-learning>
8: <https://github.com/aaroncoyner/sleep-data-aligner>
9: <https://github.com/ConnorJPSmith>
10: <https://github.com/sbabcock21>
11: <https://tvst.arvojournals.org/article.aspx?articleid=2762344>
12: <https://pubmed.ncbi.nlm.nih.gov/31044738/>
13: <https://pubmed.ncbi.nlm.nih.gov/31014678/>
14: <https://pubmed.ncbi.nlm.nih.gov/30815164/>
15: <https://pubmed.ncbi.nlm.nih.gov/29160785/>
16: <https://pubmed.ncbi.nlm.nih.gov/29368005/>
17: <https://pubmed.ncbi.nlm.nih.gov/28253400/>
18: <https://pubmed.ncbi.nlm.nih.gov/27447833/>
19: <https://pubmed.ncbi.nlm.nih.gov/26200496/>
20: <https://www.coursera.org/learn/digital>
21: <https://www.coursera.org/learn/neural-networks-deep-learning>
22: https://ohsu.campusconcourse.com/view_syllabus?course_id=15211&public_mode=1
23: https://ohsu.campusconcourse.com/view_syllabus?course_id=15217&public_mode=1
24: https://ohsu.campusconcourse.com/view_syllabus?course_id=7969
25: https://ohsu.campusconcourse.com/view_syllabus?course_id=18686
26: <https://www.ohsu.edu/school-of-medicine/csee/machine-learning>
27: <https://www.ohsu.edu/school-of-medicine/csee/data-science>
28: https://ohsu.campusconcourse.com/view_syllabus?course_id=13458&public_mode=1