

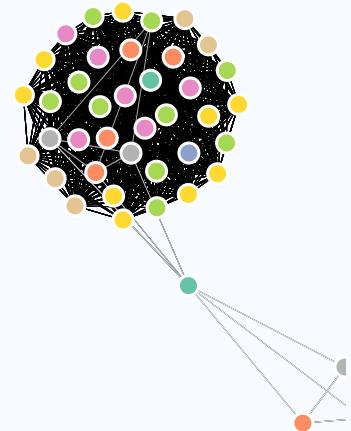
AARON COYNER, PHD(C)

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

CODE REPOSITORIES

Current
2020

- **ready-for-r-labs¹**
Oregon Health & Science University 📍 Portland, OR
 - Notebooks for Ready4R

Current
2019

- **irop-iqa²**
Oregon Health & Science University 📍 Portland, OR
 - Automated fundus image quality assessment tool for use in retinopathy of prematurity

Current
2019

- **ml-interpretability³**
Oregon Health & Science University 📍 Portland, OR
 - Black box interpretability in R for Data Analytics

Current
2019

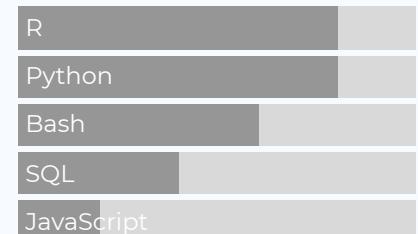
- **dissertate-ohsu⁴**
Oregon Health & Science University 📍 Portland, OR
 - Materials for writing a dissertation at Oregon Health & Science University in R Markdown

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

CONTACT

- [✉ coyner@ohsu.edu](mailto:coyner@ohsu.edu)
[🐦 aaron_coyner](https://twitter.com/aaron_coyner)
[🔗 github.com/aaroncoyner](https://github.com/aaroncoyner)
[🔗 aaroncoyner.github.io](https://aaroncoyner.github.io)
[🔗 linkedin](https://www.linkedin.com/in/aaroncoyner/)

LANGUAGE SKILLS



- 2018 ● **machine-learning⁵**
 - Personal code repository for machine learning methods implemented in Python.

2018 | 2017 ● **sleep-data-aligner⁶**
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 Learning⁷**
Translational Vision Science and Technology
 - Choi RY, **Coyner AS**, Kalpathy-Cramer J, Chiang MF, Campbell JP
- 2019 ● **Automated Fundus Image Quality Assessment in Retinopathy of Prematurity Using Deep Convolutional Neural Networks⁸**
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 Intelligence⁹**
Ophthalmology Retina
 - **Coyner AS**, Campbell JP, Chiang MF
- 2018 ● **Deep Learning for Image Quality Assessment of Fundus Images in Retinopathy of Prematurity¹⁰**
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 Therapy¹¹**
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 Neuroprotection¹²**
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 Tomography¹³**
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-Antagonist¹⁴**
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 Retinopathy¹⁵**
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 Processing¹⁶**
Oregon Health & Science University  Portland, OR
- 2018
- **BMI 602: Neural Networks for Machine Learning¹⁷**
Oregon Health & Science University  Portland, OR

2018	● BMI 635: Management and Processing of Large-Scale Data¹⁸ Oregon Health & Science University	📍 Portland, OR
2018	● BMI 667: Network Science and Biology¹⁹ Oregon Health & Science University	📍 Portland, OR
2017	● BMI 651: Statistical Methods²⁰ Oregon Health & Science University	📍 Portland, OR
2017	● BMI 669: Data Analytics²¹ Biomedical Informatics, Oregon Health & Science University	📍 Portland, OR
2017	● CS 659: Machine Learning²² Biomedical Informatics, Oregon Health & Science University	📍 Portland, OR
2017	● MATH 630: Probability and Statistical Inference for Scientists and Engineers²³ Biomedical Informatics, Oregon Health & Science University	📍 Portland, OR
2016	● BMI 650: Algorithms²⁴ 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