

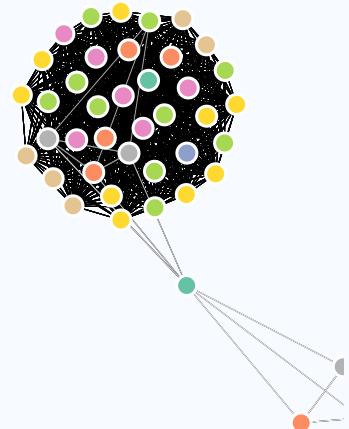
AARON COYNER, PHD(C)

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

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, Erdoganmus 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

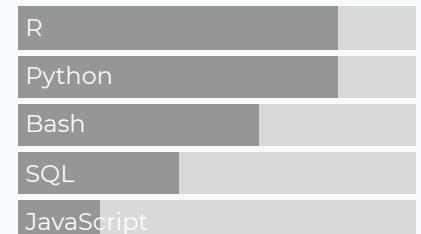
- **Introduction to Machine Learning, Neural Networks, and Deep Learning¹**
Translational Vision Science and Technology
 - Choi RY*, **Coyner AS***, Kalpathy-Cramer J, Chiang MF, Campbell JP

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



- 2019 ● **Automated Fundus Image Quality Assessment in Retinopathy of Prematurity Using Deep Convolutional Neural Networks²**
Ophthalmology Retina
• 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 Intelligence³**
Ophthalmology Retina
• Coyner AS, Campbell JP, Chiang MF
- 2018 ● **Deep Learning for Image Quality Assessment of Fundus Images in Retinopathy of Prematurity⁴**
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 Therapy⁵**
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 Neuroprotection⁶**
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 Tomography⁷**
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-Antagonist⁸**
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 Retinopathy⁹**
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

CODE REPOSITORIES

- Current | 2020 ● **ready-for-r-labs¹⁰**
Oregon Health & Science University  Portland, OR
· Notebooks for Ready4R
· Collaboration with Ted Laderas¹¹
- Current | 2019 ● **irop-iqa¹²**
Oregon Health & Science University  Portland, OR
· Automated fundus image quality assessment tool for use in retinopathy of prematurity
· Maintainer

Current 2019	<ul style="list-style-type: none"> ● ml-interpretability¹³ Oregon Health & Science University 📍 Portland, OR <ul style="list-style-type: none"> • Black box interpretability in R for Data Analytics • Maintainer
Current 2019	<ul style="list-style-type: none"> ● dissertate-ohsu¹⁴ 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 Barrett¹⁵
2018	<ul style="list-style-type: none"> ● machine-learning¹⁶ <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-aligner¹⁷ 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 Smith¹⁸ and Sean Babcock¹⁹

TEACHING AND WORK EXPERIENCE

Current 2018	<ul style="list-style-type: none"> ● Teaching Assistant Oregon Health & Science University 📍 Portland, OR <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> ● NLM Predoctoral Fellow, Division of Bioinformatics and Computational Biomedicine Oregon Health & Science University 📍 Portland, OR <ul style="list-style-type: none"> • Chiang Lab
2019	<ul style="list-style-type: none"> ● Mentored Teaching Oregon Health & Science University 📍 Portland, OR <ul style="list-style-type: none"> • BMI 665: Bioinformatics Programming and Scripting • BMI 669: Data Analytics
2016 2014	<ul style="list-style-type: none"> ● Research Assistant II Oregon Health & Science University 📍 Portland, OR <ul style="list-style-type: none"> • Penessi Lab

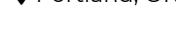
2012
|
2011

- **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://tvst.arvojournals.org/article.aspx?articleid=2762344>

2: <https://pubmed.ncbi.nlm.nih.gov/31044738/>

3: <https://pubmed.ncbi.nlm.nih.gov/31014678/>
4: <https://pubmed.ncbi.nlm.nih.gov/30815164/>
5: <https://pubmed.ncbi.nlm.nih.gov/29160785/>
6: <https://pubmed.ncbi.nlm.nih.gov/29368005/>
7: <https://pubmed.ncbi.nlm.nih.gov/28253400/>
8: <https://pubmed.ncbi.nlm.nih.gov/27447833/>
9: <https://pubmed.ncbi.nlm.nih.gov/26200496/>
10: https://github.com/laderast/ready_for_r_labs
11: <http://laderast.github.io/>
12: <https://github.com/aaroncoyner/irop-iqa>
13: <https://github.com/aaroncoyner/ml-interpretability>
14: <https://github.com/aaroncoyner/dissertate-ohsu>
15: <https://tysonbarrett.com/>
16: <https://github.com/aaroncoyner/machine-learning>
17: <https://github.com/aaroncoyner/sleep-data-aligner>
18: <https://github.com/ConnorJPSmith>
19: <https://github.com/sbabcock21>
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