

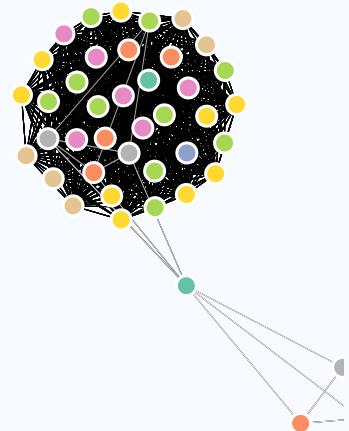
# AARON COYNER, PHD(C)

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-labs<sup>1</sup>**

Oregon Health & Science University

📍 Portland, OR

- Notebooks for Ready4R

Current  
|  
2019

- **irop-iqa<sup>2</sup>**

Oregon Health & Science University

📍 Portland, OR

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

Current  
|  
2019

- **ml-interpretability<sup>3</sup>**

Oregon Health & Science University

📍 Portland, OR

- Black box interpretability in R for Data Analytics

Current  
|  
2019

- **dissertate-ohsu<sup>4</sup>**

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](http://aaroncoyner.github.io/cv)

## CONTACT

✉ [coyner@ohsu.edu](mailto:coyner@ohsu.edu)

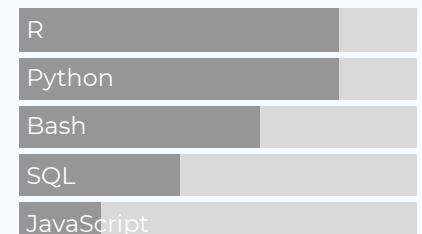
🐦 [@aaron\\_coyner](https://twitter.com/aaron_coyner)

🔗 [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-learning<sup>5</sup>**

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

2018

- **sleep-data-aligner<sup>6</sup>**

Oregon Health & Science University

📍 Portland, OR

| 2017

- 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<sup>7</sup>**

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 Networks<sup>8</sup>**

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 Intelligence<sup>9</sup>**

Ophthalmology Retina

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

2018

- **Deep Learning for Image Quality Assessment of Fundus Images in Retinopathy of Prematurity<sup>10</sup>**

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<sup>11</sup>**  
 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<sup>12</sup>**  
 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<sup>13</sup>**  
 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<sup>14</sup>**  
 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<sup>15</sup>**  
 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<sup>16</sup>**  
Oregon Health & Science University  Portland, OR
- 2018
- **BMI 602: Neural Networks for Machine Learning<sup>17</sup>**  
Oregon Health & Science University  Portland, OR

2018	● <b>BMI 635: Management and Processing of Large-Scale Data<sup>18</sup></b> Oregon Health & Science University	📍 Portland, OR
2018	● <b>BMI 667: Network Science and Biology<sup>19</sup></b> Oregon Health & Science University	📍 Portland, OR
2017	● <b>BMI 651: Statistical Methods<sup>20</sup></b> Oregon Health & Science University	📍 Portland, OR
2017	● <b>BMI 669: Data Analytics<sup>21</sup></b> Biomedical Informatics, Oregon Health & Science University	📍 Portland, OR
2017	● <b>CS 659: Machine Learning<sup>22</sup></b> Biomedical Informatics, Oregon Health & Science University	📍 Portland, OR
2017	● <b>MATH 630: Probability and Statistical Inference for Scientists and Engineers<sup>23</sup></b> Biomedical Informatics, Oregon Health & Science University	📍 Portland, OR
2016	● <b>BMI 650: Algorithms<sup>24</sup></b> Oregon Health & Science University	📍 Portland, OR

## 📘 VOLUNTEER EXPERIENCE

2017   2014	● <b>Casey Outreach Van</b> Ophthalmic Assistant	📍 Portland, OR
2013	● <b>VIDA Volunteer Services</b> Dental Assistant	📍 Costa Rica; Nicaragua
2012   2011	● <b>Guide Dogs for the Blind</b> Puppy Raiser	📍 Tacoma, WA

## 🔗 LINKS

- 1: [https://github.com/laderast/ready\\_for\\_r\\_labs](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](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](https://ohsu.campusconcourse.com/view_syllabus?course_id=15217&public_mode=1)
- 20: [https://ohsu.campusconcourse.com/view\\_syllabus?course\\_id=7969](https://ohsu.campusconcourse.com/view_syllabus?course_id=7969)
- 21: [https://ohsu.campusconcourse.com/view\\_syllabus?course\\_id=18686](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](https://ohsu.campusconcourse.com/view_syllabus?course_id=13458&public_mode=1)