

## YUNRO (ROY) CHUNG

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### RESEARCH INTERESTS

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Isotonic regression; survival analysis; receiver operating characteristics curve; statistical applications in disease diagnostics, cancer clinical trials, and correlated/longitudinal dental studies

### EDUCATION & TRAINING

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|-----------|---------------------|--|
| 2016-2018 | Postdoctoral Fellow | Fred Hutchinson Cancer Research Center, Seattle, WA          |
| 2009-2016 | PhD, Biostatistics  | University of North Carolina at Chapel Hill, Chapel Hill, NC |
| 2006-2008 | MS, Statistics      | Chung-Ang University, Seoul, South Korea                     |
| 2000-2006 | BS, Statistics      | Chung-Ang University, Seoul, South Korea                     |

### PROFESSIONAL EXPERIENCE

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|-------------|------------------------|--|
| Jul 2018-   | Assistant Professor    | College of Health Solutions, Arizona State University (ASU), Phoenix, AZ |
| Jul 2018-   | Faculty Member         | Center for Personalized Diagnostic, Biodesign Institute, ASU, Tempe, AZ  |
| 2015 Summer | SAS Statistical Fellow | SAS Institute, Cary, NC  |
| 2012 Summer | Intern                 | Novartis Oncology, Florham Park, NJ                                      |
| 2008-2009   | Researcher             | Korea Food and Drug Administration, Seoul, South Korea                   |

### HONORS & AWARDS

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| 2015      | Marci K. Campbell Dissertation Award, Lineberger Comprehensive Cancer Center, University of North Carolina at Chapel Hill, Chapel Hill, NC |
| 2014      | Young Research Travel Award, International Conference on Advances in Interdisciplinary Statistics and Combinatorics, Greensboro            |
| 2013-2016 | ORISE (Oak Ridge Institute for Science and Education) Fellowship for PhD Dissertation Research, US Food and Drug Administration            |
| 2007      | SAS Mining Championship, Third prize, SAS Korea  |

### TEACHING at ASU (unless stated otherwise)

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#### *Courses Taught*

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|-------------|--|
| 2020 Fall   | BMI 515: Applied biostatistics in medicine and informatics (Previously A course 7.5 week, and new course curriculums were developed to teach it as C course 15 week) |
| 2020 Spring | BMI 211: Modeling Biomedical Decisions   |
| 2019 Fall   | HCD 300: Biostatistics   |
| 2019 Spring | BMI 211: Modeling Biomedical Decisions   |

#### *Guest Lecturers*

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| Sep 2018 | “Introduction to Survival Analysis”, BMI 461: Advanced Topics in Biomedical Informatics I |
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### ***Seminars***

Jan 2020 Evaluation of Biomarkers using Receiver Operating Characteristics Curve, Center for Personalized Diagnostic, Biodesign Institute

May 2019 Fundamental of Biostatistics, Bioinformatics Core Lab Workshops

### ***Teaching Activities at University of North Carolina at Chapel Hill, NC***

- Guest lecturer, Bios 600: Principles of Statistical Inference, “Survival Analysis: Kaplan Meier and Logrank Test”, April 19, 2012
- Teaching Assistant, Bios 600: Principles of Statistical Inference, 2012 Spring
- Grader, Bios 665: Analysis of Categorical Data, Fall of 2010, 2011, 2012, 2013, 2015
- Grader, Bios 765: Models and Methodology in Categorical Data, Fall of 2012, 2014

## **MENTORING at ASU**

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### ***Doctoral Dissertation Committee Chair***

2020-Present Yaliang Zhang (co-advised with Dr. McCulloch), Statistics

2020-Present Rylan Fowers (co-advised with Dr. Stecher), Biomedical Informatics

### ***Doctoral Dissertation Committee Member***

2020-present Meredith Abrams, Biomedical Informatics, Chair: Dr. Wang

2020-Present Shalini Sivanandam, Biomedical Informatics, Char: Dr. Doebbeling

2019 Robert Yao, Biomedical Informatics, Chair: Dr. Wang

### ***Graduate Student Workers***

Oct 2018-May 2020 Aditya Vikram Sharma

Intern: Amazon, Seattle, 2019 summer

First-job: Software engineer, MathWorks, Natick, MA, 2020.

Oct 2018-Sep 2020 Yaliang Zhang

Intern: 58 Tongcheng, Beijing, China, 2019 summer

Feb 2020-May 2020 Surya Vamsi Tenneti

Intern: Amazon, Seattle, 2020 summer

### ***Undergraduate Student Research Projects***

Spring 2020 Rohit Nandakumar, Barrett’s project through BMI 211

Project: Meta-analysis for biomarker discovery

Feb 2020-present Alvi Habib

Project: Subgroup-based machine learning algorithms

Mar 2020-present Danielle Brister, Barrett’s honor thesis

Project: Biomarker discovery for heterogeneous diseases

### ***Technicians***

2019-present Stacy Williams

2018 Paul Maranian

## **FUNDING**

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### ***Active***

2020-2025 21X089. Leidos (HHS-NIH). Multiplexed in-solution serological test for SARS-CoV-2, human coronaviruses and other respiratory pathogens.  
Co-I (PI: LaBaer), \$14,922,843

2019-2020 W911NF19C0039. DOD-DARPA: Biological Technologies Office. Diagnostic Epigenetics of Infectious agents and Chemical Toxicity. Co-I (PI: LaBaer), \$4,539,173

### PATENTS

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- M20-060LC\*: “Novel biomarkers for EBV associated gastric cancer detection” with J. LaBaer, J. Qiu and L. Song, Sep 2019, pending
- M20-058LC\*: “Novel antibodies in gastric cancer” with J. LaBaer, J. Qiu and L. Song, Sep 2019, pending

### PUBLICATIONS

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#### *Peer Reviewed Publications*

- Song, L., Song, M., Rabkin, C.S., Williams, S., **Chung, Y.**, Van Duine, J., Liao, L.M., Karthikeyan, K., Gao, W., Park, J.G. and Tang, Y., Helicobacter pylori Immunoproteomic Profiles in Gastric Cancer. *Journal of Proteome Research*. 2020
- Lee, T., **Chung, Y.**, Poulton, C.J., Derebail, V.K., Hogan, S.L., Reich, H.N., Falk, R.J. and Nachman, P.H., Serum albumin at partial remission predicts outcomes in membranous nephropathy. *Kidney International Reports*. 5 (5), 706-717, 2020
- Davis, J.M., Ivanova, A., **Chung, Y.**, Shaw, J.R., Rao, K.V., Ptachcinski, J.R., Sharf, A.A., Serody, J.S., Armistead, P.M., Wood, W.A. and Coghill, J.M., Evaluation of a Test Dose Strategy for Pharmacokinetically-Guided Busulfan Dosing for Hematopoietic Stem Cell Transplantation, *Biology of Blood and Marrow Transplantation*, 25 (2), 391-397, 2019
- Ruschel, V.C., Stolf, S.C., Shibata, S., **Chung, Y.**, Boushell, L.W., Baratieri, L.N. and Walter, R., Three-year clinical evaluation of universal adhesives in non-carious cervical lesions. *American journal of dentistry*, 32(5), 223-228, 2019
- Farias, D.C.S., Gonçalves, L.M., Walter, R., **Chung, Y.** and Blatz, M.B., Bond strengths of various resin cements to different ceramics. *Brazilian oral research*, 33, 2019
- **Chung, Y.**, Ivanova, A., Hudgens, M.G. and Fine, J.P., Partial likelihood estimation of isotonic proportional hazards models, *Biometrika*, 105 (1), 133-148, 2018.
- Wang, C., Preisser, J., **Chung, Y.** and Li, K., Complementary and alternative medicine use among children with mental health issues: results from the National Health Interview Survey, *BMC complementary and alternative medicine*, 18 (1), 241, 2018
- Ruschel, V.C., Shibata, S., Stolf, S.C., **Chung, Y.**, Baratieri, L.N., Heymann, H.O. and Walter, R., Eighteen-month clinical study of universal adhesives in noncarious cervical lesions, *Operative dentistry*, 43 (3), 241-249, 2018
- Park, J., Jang, J.H., Park, G.S., **Chung, Y.**, You, H.J. and Kim, J.H. , BLT2, a leukotriene B4 receptor 2, as a novel prognostic biomarker of triple-negative breast cancer, *BMB reports*, 51 (8), 373, 2018
- Bak, S.Y., Qi, X.S., Kelly, J.A., Alexander, S., **Chung, Y.**, Gyurdzhyan, S., Patton, L.L. and Lee, S.P., Dosimetric distribution to tooth-bearing areas in intensity-modulated radiation therapy for head and neck cancer: a pilot study, *Oral surgery, oral medicine, oral pathology and oral radiology*, 121 (1), 43-48, 2016

- Lee, T., Derebail, V.K., Kshirsagar, A.V., **Chung, Y.**, Fine, J.P., Mahoney, S., Poulton, C.J., Lionaki, S., Hogan, S.L., Falk, R.J. and Cattran, D.C., Patients with primary membranous nephropathy are at high risk of cardiovascular events, *Kidney international*, 89 (5), 1111-1118, 2016
- Ritter, A.V., Preisser, J.S., Puranik, C.P., **Chung, Y.**, Bader, J.D., Shugars, D.A., Makhija, S. and Vollmer, W.M., A predictive model for root caries incidence, *Caries research*, 50 (3), 271-278, 2016
- Boushell, L.W., Heymann, H.O., Ritter, A.V., Sturdevant, J.R., Swift Jr, E.J., Wilder Jr, A.D., **Chung, Y.**, Lambert, C.A. and Walter, R., Six-year clinical performance of etch-and-rinse and self-etch adhesives, *Dental Materials*, 32 (9), 1065-1072, 2016
- Shea, T.C., Walko, C., **Chung, Y.**, Ivanova, A., Sheets, J., Rao, K., Gabriel, D., Comeau, T., Wood, W., Coghill, J. and Armistead, P., Phase I/II trial of dose-escalated busulfan delivered by prolonged continuous infusion in allogeneic transplant patients, *Biology of Blood and Marrow Transplantation*, 21 (12), 2129-2135, 2015
- Walter, R., Boushell, L.W., Heymann, H.O., Ritter, A.V., Sturdevant, J.R., Wilder Jr, A.D., **Chung, Y.** and Swift Jr, E.J., Three-Year Clinical Evaluation of a Silorane Composite Resin, *Journal of Esthetic and Restorative Dentistry*, 26 (3), 179-190, 2014
- Lee, T., Gasim, A., Derebail, V.K., **Chung, Y.**, McGregor, J.G., Lionaki, S., Poulton, C.J., Hogan, S.L., Jennette, J.C., Falk, R.J. and Nachman, P.H., Predictors of treatment outcomes in ANCA-associated vasculitis with severe kidney failure, *Clinical Journal of the American Society of Nephrology*, 9 (5), 905-913, 2014
- Essick, G., Phillips, C., **Chung, Y.** and Trotman, C.A., Effects of lip revision surgery on long-term orosensory function in patients with cleft Lip/Palate, *The Cleft Palate-Craniofacial Journal*, 50 (5), 507-512, 2013
- Walter, R., Feiring, A.E., Boushell, L.W., Braswell, K., Bartholomew, W., **Chung, Y.**, Phillips, C., Pereira, P.N. and Swift, E.J., One-year water sorption and solubility of all-in-one adhesives, *Brazilian dental journal*, 24 (4), 344-348, 2013
- McFarland, T.B.H., Quinonez, R.B., Phillips, C., Lee, J. and **Chung, Y.**, Provision of Preventive Oral Health Services to Infants and Toddlers: North Carolina General Dentists' Readiness, *Journal of Oral Health & Community Dentistry*, 7 (3), 140-147, 2013
- Ritter, A.V., Preisser, J.S., **Chung, Y.**, Bader, J.D., Shugars, D.A., Amaechi, B.T., Makhija, S.K., Funkhouser, K.A., Vollmer, W.M. and X-ACT Collaborative Research Group, Risk indicators for the presence and extent of root caries among caries-active adults enrolled in the Xylitol for Adult Caries Trial (X-ACT), *Clinical oral investigations*, 16 (6), 1647-1657, 2012
- Walter, R., Swift Jr, E.J., Nagaoka, H., **Chung, Y.**, Bartholomew, W., Braswell, K.M. and Pereira, P.N., Two-year bond strengths of "all-in-one" adhesives to dentine, *Journal of dentistry*, 40 (7), 549-555, 2012
- Phillips, C., Essick, G.K., **Chung, Y.** and Blakey, G., Non-invasive therapy for altered facial sensation following orthognathic surgery: an exploratory randomized clinical trial of intranasal vitamin B12 spray, *Journal of maxillofacial trauma*, 1 (1), 2012

#### **Published Book Chapters**

- Zink, R.C., Koch, G.G., **Chung, Y.** and Wiener, L.E., Advanced Randomization-based Methods. Analysis of Clinical Trials Using SAS: A Practical Guide, 67-86, SAS Institute, 2017

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## **PRESENTATIONS**

- Personalized Diagnostic Rule for NAPPA Protein Array, Arizona Wellbeing Commons Conference, Phoenix, AZ, Sep 2019, Poster
- Deep-learning applications in biomedical natural language processing and gene network analysis, The Statistical and Applied Mathematical Sciences Institute, Durham, NC, Aug 2019, Poster
- Efficient estimation of biomarker accuracy with failure-time surrogate endpoints
  - Biodesign Institute, ASU, Tempe, AZ, May 2018
  - Penn State College of Medicine, Hershey, PA, Mar 2018
  - St. Jude Children’s Research Hospital, Memphis, TN, Mar 2018
  - Hollings Cancer Center, Medical University of South Carolina, Charleston, SC, Mar 2018
  - Center for Drug Evaluation Research, US Food and Drug Administration, Silver Spring, DC, Jan 2018
- Shape restricted additive hazards models, Eastern North American Region, Washington, DC, Mar 2017, Poster
- Estimation of disease progression rate using longitudinal surrogate outcomes in non-randomized validation subsample, Conference on Lifetime Data Science, Storrs, CT, May 2017
- Partial likelihood estimation of the isotonic proportional hazards model
  - Center for Drug Evaluation Research, US Food and Drug Administration, Silver Spring, DC, Jan 2016
  - National Institute of Environmental Health Sciences, NIH, Cary, NC, Oct 2015
  - Eastern North American Region, Miami, FL, Mar 2015
  - Lineberger Comprehensive Cancer Center, University of North Carolina at Chapel Hill, Chapel Hill, NC, Feb 2015
- Statistical challenges in investigating the effect of Busulfan delivered by targeted pharmacokinetics in Phase I oncology trial, International Conference on Advances in Interdisciplinary Statistics & Combinatorics, Greensboro, NC, Oct 2014

## **SERVICE**

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### ***College Committee at College of Health Solutions:***

- Member, Biostatistics Cluster Faculty Hiring Committee, 2020-
- Member, Tenure-Track Ad Hoc Review Committee, 2020
- Member, Faculty Hiring Committee (data scientist; health economist), 2019-2020
- Member, Faculty Service Committee, 2019

### ***Unit Committee at Biomedical Informatics Program:***

- Member, Admission Committee, 2020-
- Member, PhD comprehensive exam, 2020
- Member, Academic Program Committee, 2018-2019
- Poster Judge, Biomedical Informatics/Diagnostics Research Symposium, Apr 2020

### ***Ad-Hoc Journal Reviewer:***

- Biometrics
- Computer Methods and Programs in Biomedicine
- Journal of Biomedical Informatics
- Journal of the American Statistical Association
- Journal of the Royal Statistical Society: Series B

- Statistics in Biosciences
- Statistical Computation and Simulation
- The Annals of Applied Statistics
- The R Journal

### **PROFESSIONAL AFFILIATIONS**

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American Statistical Association (ASA); ASA Section for Medical Devices and Diagnostics; Korean American Scientists and Engineers Association; Sigma Xi

### **SOFTWARE DEVELOPED**

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#### ***R packages available on CRAN***

- isoSurv: isotonic estimations under order-restricted proportional hazards models.
- surrosurvROC: nonparametric and semiparametric estimations of time-dependent ROC with surrogate information.
- uniah: shape-restricted estimations for unimodal or U-shaped additive hazards models.

*Last Updated: November 2021*