

# YUNRO CHUNG

ASU Biodesign Institute  
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## EDUCATION & TRAINING

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2016-2108 Postdoctoral fellow, Fred Hutchinson Cancer Research Center, Seattle, WA  
2016 Ph.D., Biostatistics, University of North Carolina at Chapel Hill, Chapel Hill, NC  
2008 M.S., Statistics, Chung-Ang University, Seoul, South Korea  
2006 B.S., Statistics, Chung-Ang University, Seoul, South Korea

## PROFESSIONAL EXPERIENCE

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2018- Present Arizona State University (ASU), Tempe, AZ  
Assistant Professor, College of Health Solutions  
Faculty Member, Center for Personalized Diagnostics, Biodesign Institute  
2015 Summer SAS Institute, Cary, NC  
SAS Statistical Fellow, Statistical Software Development Division  
2012 Summer Novartis Pharmaceuticals Corporation, Florham Park, NJ  
Intern, Department of Biometrics, Oncology Business Unit  
2019-2016 University of North Carolina at Chapel Hill, Chapel Hill, NC  
Graduate Research Assistant, NC Transitional and Clinical Science Institute  
Graduate Research Assistant, Biometric Consulting Laboratory  
Graduate Research Assistant, School of Dentistry  
2008-2009 Korea Food and Drug Administration, Seoul, South Korea  
Biostatistician, Biostatistics Division, National Institute of Toxicology Research

## 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, NC  
2013-2016 ORISE (Oak Ridge Institute for Science and Education) Fellowship for PhD Dissertation Research, US Food and Drug Administration

## PROFESSIONAL MEMBERSHIP

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- American Statistical Association (ASA)
- Korean American Scientists and Engineers Association
- Sigma Xi

## MAJOR RESEARCH INTERESTS

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Survival analysis; isotonic regression; Statistical evaluation of biomarkers & medical tests; Bayesian machine learning.

## GRANT FUNDING

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### **Active**

10/01/2020-09/30/2025.

21X089, Leidos (HHS-NIH), “Multiplexed in-solution serological test for SARS-CoV-2, human coronaviruses and other respiratory pathogens”. Role: Co-Investigator (PI: LaBaer)  
*This award will establish the ASU Capacity Building Center for Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) serological testing with their clinical partners - Columbia University, Dignity Health, ValleyWise, and Abrazo hospitals, as part of the national Serological Sciences Network for SARS-CoV-2.*

### **Complete**

07/22/2019-12/31/2020.

W911NF19C0039, DOD-DARPA-BTO, “Diagnostic Epigenetics of Infectious agents and Chemical Toxicity”. Role: Co-Investigator (PI: LaBaer).  
*This award will use innovative approaches to develop a field-forward system to evaluate an individual’s epigenome to reveal their history of exposure to weapons of mass destruction (WMD) and WMD precursors*

## PUBLICATIONS

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### **Peer Reviewed Publications**

1. Song, L., Song, M., Camargo, M.C., Van Duine, J., Williams, S., **Chung, Y.**, Kim, K.M., Lissowska, J., Sivins, A., Gao, W. and Karthikeyan, K., Identification of anti-epstein-barr virus (EBV) antibody signature in EBV-associated gastric carcinoma. *Gastric Cancer*. accepted.
2. 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., Profiles in Gastric Cancer. *Journal of Proteome Research*. 20(1), 409-419. 2020
3. 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
4. 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
5. 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
6. 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
7. **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

8. 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 medicine and therapy*, 18 (1), 241, 2018
9. 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
10. 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
11. 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
12. 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
13. 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
14. 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
15. 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
16. 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
17. 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
18. 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
19. 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
20. 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

21. 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
22. 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
23. 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**

1. **Chung, Y.**, “Statistical Analysis of Protein Microarray Data using R, Protein Microarrays for Disease Analysis”. Protein Microarrays for Disease Analysis, Springer Nature (in progress)
2. 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

### **PRESENTATIONS**

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1. Personalized Diagnostic Rule for NAPPA Protein Array, Arizona Wellbeing Commons Conference, Phoenix, AZ, 09/2019
2. Deep-learning applications in biomedical natural language processing and gene network analysis, The Statistical and Applied Mathematical Sciences Institute, Durham, NC, 08/2019
3. Shape restricted additive hazards models, Eastern North American Region, Washington, DC, 03/2017
4. Estimation of disease progression rate using longitudinal surrogate outcomes in non-randomized validation subsample, Conference on Lifetime Data Science, Storrs, CT, 05/2017
5. Partial likelihood estimation of the isotonic proportional hazards model, Center for Drug Evaluation Research, Food and Drug Administration, Silver Spring, DC, 01/2016
6. Partial likelihood estimation of the isotonic proportional hazards model, Eastern North American Region Spring Meeting, Miami, FL, 03/2015
7. 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, 10/2014

### **PATENTS**

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1. M20-060LC\*: “Novel biomarkers for EBV associated gastric cancer detection” with J. LaBaer, J. Qiu and L. Song, pending, filed on 09/2019 through ASU’ Skysong Innovations
2. M20-058LC\*: “Novel antibodies in gastric cancer” with J. LaBaer, J. Qiu and L. Song, pending, filed on 09/2019 through ASU’ Skysong Innovations

### **SOFTWARE DEVELOPED**

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*R packages available on the CRAN (Comprehensive R Archive Network)*

- isoSurv: nonparametric estimation of order-restricted survival analysis
- surrosurvROC: estimation of time-dependent ROC with surrogate information

- uniah: R package for nonparametric estimation of univariate additive hazards models

## **TEACHING at ASU (unless stated otherwise)**

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### ***Courses Taught (credits / courses / levels)***

BMI 515: Applied biostatistics in medicine and informatics (3 / C / graduate)

Fall 2021 On-ground, Anticipated

Fall 2020 ASU Sync, Enrollment: 14

BMI 211: Modelling biomedical decision (3 / C / undergraduate)

Spring 2021 ASU Sync, Enrollment: 21

Spring 2020 On-ground, Enrollment: 23

Spring 2019 On-ground, Enrollment: 22

HCD 300: Biostatistics (3 / C / undergraduate)

Fall 2019 On-ground, Enrollment: 24

### ***Guest Lecturer***

9/26/2018 Introduction to Survival Analysis, BMI 461: Advanced Topics in Biomedical Informatics I

### ***Internal Seminars***

02/07/2020 Biomarker Evaluation using Receiver Operating Characteristics Curve, Center for Personalized Diagnostic, Biodesign Institute

05/13/2019 Fundamental of Biostatistics, Bioinformatics Core Lab Workshops

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

04/19/2012 Guest lecturer, Survival Analysis: Kaplan Meier and Logrank Test, Bios 600: Principles of Statistical Inference, Lecture

2012 Spring Teaching Assistant, Bios 600: Principles of Statistical Inference

Fall 2010-2013 & 2015 Grader, Bios 665: Analysis of Categorical Data,

Fall 2012 & 2014 Grader, Bios 765: Models and Methodology in Categorical Data,

## **MENTORING at ASU**

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

2020-present Yaliang Zhang (co-advised by Dr. McCulloch), PhD program in Statistics

2020-present Rylan Fowers (co-advised by Dr. Stecher), PhD program in Biomedical Informatics

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

2021-present Mariah Sullivan, Exercise & Nutritional Science, Chair: Dr. Huberty

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

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

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

***Undergraduate Barret's Thesis Dissertation Committee Chair***

2021-present Danielle Brister, Undergraduate, Chemistry, Biology & Global Health

***Graduate Service Assistant***

10/2018-05/2020 Aditya Vikram Sharma, Master program in Computer Science

10/2018-09/2020 Yaliang Zhang, PhD program in Statistics

02/2020-05/2020 Surya Vamsi Tenneti, Master program in Computer Science

***Volunteer Student Workers***

01/2021-03/2021 Iphsa Banerjee, Master program in Biomedical Informatics

03/2020-01/2021 Danielle Brister, Undergraduate, Chemistry, Biological Sciences

02/2020-10/2020 Alvi Habib, Undergraduate, Computer Science

01/2020-05/2020 Rohit Nandakumar, Undergraduate program, Biomedical Informatics

05/2019-06/2019 Alisha Thomas, Undergraduate, Biomedical Informatics

10/2019-11/2019 Ketan Patil, Master program in Computer Science

***Staff***

2019-present Stacy Williams, Master's level statistician

2018-2019 Paul Maranian, Master's level statistician

**SERVICE**

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***College Level, College of Health Solutions:***

2020-2021 Member, Faculty Hiring Committee  
3 tenured or tenure track & 1 non-tenure track lecturer for Biostatistics

2020 Member, Tenure-Track Ad Hoc Review Committee

2019-2020 Member, Faculty Hiring Committee  
1 tenured or tenure-track for Biomedical Informatics and Data Science  
1 tenured or tenure-track for Health Economics and Data Analytics

2019 Member, Faculty Service Committee

***Unit Level, Biomedical Informatics Program:***

2020-Present Member, Admission Committee

2020-2021 Member, PhD Comprehensive Exam Committee

2018-2019 Member, Academic Program Committee

4/24/2020 Poster Judge, Biomedical Informatics & Diagnostics Research Symposium

***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

Last updated: 05/2021