JACOB (HANJIE) SHEN

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CORE COMPETENCIES

- Machine Learning
- Predictive Modeling
- High-Dimensional Data Analysis
- Image Segmentation
- Statistical Computing
- Data Management

EDUCATION

M.S. Statistics Sep. 2013 - Mar. 2015
University of California San Diego, La Jolla, CA

B.S. Computational Mathematics Sep. 2009 - Jun. 2013
Xiamen University, Xiamen, China

COMPUTER SKILLS

Extensive experience in R, Python, MATLAB, SAS, Stata, SPSS, LaTeX, C, Java.
Familiarity with Deep Learning frameworks (Keras, TensorFlow, etc.).
Familiarity with PC, Mac, and UNIX operation systems.
Knowledgeable in SQL and Hadoop/RHIPE.

WORKING EXPERIENCE

Statistician Nov. 2018 - Present
Fred Hutchinson Cancer Research Center, Seattle, WA
Cancer Prevention Program

- Develop and apply robust machine learning methods to analyze complex, high-dimensional physical activity Fitbit data and large-scale clinical trials.
- Develop novel statistical models, prepare peer-reviewed publications, and present analytical results.
- Lead in protocol development, data management, and data quality control procedures.

Statistical Center for HIV/AIDS Research & Prevention (SCHARP)

- Write statistical analysis plans and provide statistical analysis of project data.
- Develop and evaluate new statistical software and provide statistical consultation for research projects.

Biostatistics Manager May. 2018 - Oct. 2018
Center for Precision Radiation Medicine
UC San Diego Altman Clinical and Translational Research Institute, La Jolla, CA

- Assisted in the management work for Head & Neck Cancer Clinical and Translational Research Lab.
- Applied state-of-the-art machine learning and deep learning methods to analyze medical image data, large-scale clinical trials, and observational data.
- Developed and evaluated new predictive models and statistical softwares.
- Prepared manuscripts and presented scientific research results to a wide variety of stakeholders.

Statistician Sep. 2015 - Mar. 2018
UC San Diego Health, La Jolla, CA

- Developed a novel optimized risk-stratification method to assess and predict the risk levels of cancer patients.
- Developed and published a new useful predictive modeling R package ***gcerisk*** to help radiologists stratify cancer patients from low- to high-risk.
- Applied clustering and classification methods to segment liver tumors from medical images (CT Scan and MRI Scan).
- Applied multivariate analyses to identify novel quantitative and qualitative imaging features used in predicting the severity of the liver tumor.
- Applied robust machine learning methods to stratify liver cancer patients with different risk levels.

Teaching Assistant Jul. 2015 - Jun. 2016
UC San Diego Extension, La Jolla, CA

- Assisted in teaching graduate-level statistical methodology courses.
- Responsible for leading discussion sessions and grading homework.

Research Assistant Jun. 2014 - Jun. 2015
HIV Neurobehavioral Research Center
UC San Diego, La Jolla, CA

- Recommended suitable techniques and methods to analyze longitudinal clinical data.
- Built Linear Mixed Effects Model to measure the treatment effect of new therapy for HIV.
- Assisted in preparing manuscripts based on the research methods, results, and analysis.

PUBLICATIONS

1. Neugebauer RS, **Shen H** *et al.* **Using Marginal Structural Model with Machine Learning Techniques to Examine the Risk of Cardiovascular Disease Following Breast Cancer Treatment: The Pathways Heart Study**. *In preparation*, 2022.
2. **Shen H**, Rillamas-Sun E *et al.* **Risk of Cardiovascular Disease Following Breast Cancer Chemotherapy Drugs: The Pathways Heart Study**. *In preparation*, 2022.
3. Kwan ML *et al.* (including **Shen H**). **Risk of Cardiometabolic Risk Factors in Women With and Without a History of Breast Cancer: The Pathways Heart Study**. *Journal of Clinical Oncology*, JCO-21, 2022.
4. Greenlee H *et al.* (including **Shen H**). **Risk of Cardiovascular Disease in Women With and Without Breast Cancer: The Pathways Heart Study**. *Submitted to Journal of Clinical Oncology*, 2021.
5. Marín-Chollom AM, Hale C, Koch P, Gaffney AO, Contento I, **Shen H** *et al.* **Cognitive Functioning and Health in Hispanic/Latina Breast Cancer Survivors**. *Journal of Immigrant and Minority Health*, 1-8, 2021
6. Zakeri K *et al.* (including **Shen H**). **Predictive Classifier for Intensive Treatment of Head and Neck Cancer**. *Cancer*, 126(24), 5263-5273, 2020.
7. **Shen H**, Jeong JH, Mell LK. **Proportional Relative Hazards Model for Competing Risks Data**. *medRxiv*, 2020.
8. Vitzthum LK, Park H, Zakeri K, Bryant AK, Feng C, **Shen H** *et al.* **Selection of Head and Neck Cancer Patients for Intensive Therapy**. *International Journal of Radiation Oncology* Biology* Physics*, 106(1), 157-166, 2020
9. Mell LK, **Shen H** *et al.* **Nomogram to Predict the Benefit of Intensive Treatment for Locoregionally Advanced Head and Neck Cancer**. *Clinical Cancer Research*, 25(23), 7078-7088, 2019.
10. Park A, Alabaster A, **Shen H** *et al.* **Undertreatment of Women with Locoregionally Advanced Head and Neck Cancer**. *Cancer*, 125(17), 3033-3039, 2019.
11. Green G, Kim E, Carmona R, **Shen H** *et al.* **Incidence of Long-Term Esophageal Dilation With Various Treatment Approaches in the Older Head and Neck Cancer Population**. *Frontiers in oncology*, 8, 466, 2018.
12. Zakeri K *et al.* (including **Shen H**). **Predictor of Effectiveness of Treatment Intensification on Overall Survival in Head and Neck Cancer (HNC)**. *Annals of Oncology*, 29, viii375-viii376, 2018.
13. Vitzthum LK *et al.* (including **Shen H**). **Comparison of Comorbidity and Frailty Indices in Patients with Head and Neck Cancer Using an Online Tool**. *JCO clinical cancer informatics*, 2, 1-9, 2018.
14. Zakeri K, Noticewala SS, Vitzthum LK, Sojourner E, **Shen H** *et al.* **'Optimism bias' in Contemporary National Clinical Trial Network Phase III Trials: Are We Improving?**. *Annals of Oncology*, 29(10), 2135-2139, 2018.
15. Bryant AK, Vitzthum LK, Zakeri K, **Shen H** *et al.* **Prognostic Role of p16 in Non-oropharyngeal Head and Neck Cancer**. *International Journal of Radiation Oncology* Biology* Physics*, 100(5), 1319, 2018.
16. Zakeri K, Panjwani N, Carmona R, **Shen H** *et al.* **Generalized Competing Event Models Can Reduce Cost and Duration of Cancer Clinical Trials**. *JCO Clinical Cancer Informatics*, 2, 1-12, 2018.
17. Mell LK, Zhang Q, **Shen H** *et al.* **Generalized Competing Event Regression to Stratify Head and Neck Cancer Patients: Secondary Analysis of NRG Oncology RTOG 9003, 0129, and 0522**. *International Journal of Radiation Oncology* Biology* Physics*, 99(2), S236-S237, 2017.
18. Vitzthum LK, Noticewala SS, Hines P, Zakeri K, Nguyen C, **Shen H** *et al.* **A Web-Based Tool to Compare Comorbidity Models and Geriatric Risk-Assessment in Head and Neck Cancer Patients**. *International Journal of Radiation Oncology* Biology* Physics*, 99(2), E379, 2017.
19. Noticewala SS, Li N, Williamson CW, Hoh CK, **Shen H** *et al.* **Longitudinal Changes in Active Bone Marrow for Cervical Cancer Patients Treated With Concurrent Chemoradiation Therapy**. *International Journal of Radiation Oncology* Biology* Physics*, 97(4), 797-805, 2017.
20. Li N, Noticewala SS, Williamson CW, **Shen H** *et al.* **Feasibility of ATLAS-Based Active Bone Marrow Sparing Intensity Modulated Radiation Therapy for Cervical Cancer**. *Radiotherapy and Oncology*, 123(2), 325-330, 2017.
21. Carmona R *et al.* (including **Shen H**) **Improved Method to Stratify Elderly Patients With Cancer at Risk for Competing Events**. *Journal of Clinical Oncology*, 34(11), 1270-1277, 2016.
22. Williamson CW, Green G, Noticewala SS, Li N, **Shen H** *et al.* **Prospective Validation of a High Dimensional Shape Model for Organ Motion in Intact Cervical Cancer**. *International Journal of Radiation Oncology* Biology* Physics*, 96(4), 801-807, 2016.
23. Li N, Noticewala SS, Williamson CW, **Shen H** *et al.* **ATLAS-Based Active Bone Marrow-Sparing Intensity Modulated Radiation Therapy for Cervical Cancer**. *International Journal of Radiation Oncology* Biology* Physics*, 96(2S), S98-S99, 2016.