

Luke Hebert

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EDUCATION

- **GRE: 327**

Verbal: 168, Quant: 159, Writing: 4.5
Sept 2019

- **BS in Bioinformatics**

Summa Cum Laude (GPA 3.822)
May 2016, University of St. Thomas, Houston, TX

RESEARCH EXPERIENCE

Whole Exome Sequencing Analysis (Myelomeningocele)

May 2017—July 2017

UTHSC Division of Pediatric Genetics under Drs. Hope Northrup and Kit-Sing Au

July 2018—Present

- filter, visualize, and statistically analyze whole exome sequencing data with Python & R
- read literature and write manuscript summarizing my research
- regularly collaborate with P.I. and lab members to create a bioinformatics pipeline
- present findings to DSHS Newborn Screening Unit members, UTHSC pediatric genetics grand rounds, and International Neural Tube Defects Conference

Grant Data Gathering

June 2015—Aug 2015

Baylor College of Medicine under Smith Clinic Radiation Oncologist Michelle Ludwig, MD., PhD.

- statistically summarize breast cancer patient population's risk for heart disease using 200 patient charts
- help write grant proposal
- participate in Baylor College of Medicine's Summer Medical and Research Training (SMART) program

Drosophila melanogaster & Toxicology

May 2013—May 2016

University of St. Thomas under biology department-chair Rosemarie Rosell, PhD.

- delegate tasks and help design experiment
- present poster at symposiums
- expose flies to gaseous toluene, calibrate system, mate flies, general fly maintenance

PUBLICATIONS

- Burden of Rare Deleterious Variants in WNT Signaling Genes Among 511 Myelomeningocele Patients. **Luke Hebert**, Paul Hillman, Craig Baker, Michael Brown, Allison Ashley-Koch, James Hixson, Alanna C. Morrison, Hope Northrup, Kit Sing Au. *In progress, view here:* <https://www.authorea.com/users/323609/articles/452178-burden-of-rare-deleterious-variants-in-wnt-signaling-genes-among-511-myelomeningocele-patients>
- Identification of Novel Candidate Risk Genes for Myelomeningocele within the Glucose Homeostasis/Oxidative Stress and Folate/One-Carbon Metabolism Networks. Paul Hillman MD/PhD*, Craig Baker MD*, **Luke Hebert** BS, Michael Brown MS, James Hixson PhD, Allison Ashley-Koch PhD, Alanna C. Morrison PhD, Hope Northrup MD, Kit Sing Au PhD, *equal contribution. *Under Review.*

SELECTED PRESENTATIONS

- 511 Human Exomes Reveal which WNT Signaling Genes May Associate with Myelomeningocele. **Luke Hebert** (BS), Paul Hillman (MD, PhD), Craig Baker (MD), Michael Brown (MS), James Hixson (PhD), Alanna C. Morrison (PhD), Hope Northrup (MD), Kit-Sing Au (PhD). 2019 International Neural Tube Defects Conference. Boston, MA. September 16th, 2019.
- High Planar Cell Polarity Gene Variant Allele Frequency in Patients with Myelomeningocele. **Luke Hebert** (BS), Hope Northrup (MD), Kit-Sing Au (PhD). UTHSC Division of Pediatric Genetics Grand Rounds, Houston, TX. July 19th, 2017.
- High Planar Cell Polarity Gene Variant Allele Frequency in Patients with Myelomeningocele. **Luke Hebert**, Hope Northrup (MD), Kit-Sing Au (PhD). DSHS Newborn Screening Unit Presentation, Austin, TX. July 19th, 2017.
- Determining the Correlation between Toluene Exposure on *Drosophila melanogaster* and the Resulting Toxicity Effects of Toluene on Fly Offspring Morphology. Duong G, Dao C, **Hebert L**, Fisher K, Reinhardt H, Lam Q, Trivino V, LeDesma E and Rosell RC. Entomological Society of America National Meeting, Portland, OR. Nov 11th-15th, 2014. (Poster won second place in President's prize competition, Undergraduate Physiology Section.)
- Determining the Lethal Concentration (LC₅₀) of toluene on *Drosophila melanogaster* and the morphological effects on its offspring. Duong G, Knippa Z, Skeen-Esterheld H, Dao C, **Hebert L**, Fisher K, Ton M, LeDesma E and Rosell RC. Entomological Society of America National Meeting, Austin, TX. Nov 10-13, 2013. (Poster won first place in President's prize competition, Undergraduate Physiology Section.)

PROGRAMMING PROFICIENCIES

Github

- <https://github.com/LukeHebert>

Python

- versions: 2.7, 3.6, 3.7
- packages/modules: pandas, matplotlib, numpy (among others)
- associated software: PyMOL

R

- version 3.4.4
- packages/libraries: DESeq2

WORK EXPERIENCE

Research Assistant 1

July 2018—Present

*University of Texas Health Science Center's
McGovern Medical School, Division of Pediatric Genetics*

- filter, visualize, and apply statistical analyses to whole exome sequencing and RNA sequencing data by coding in Python and R
- personally investigate which Wnt signaling genes may contribute to myelomeningocele

Biology Department Student Worker Part Time

July 23rd 2014—Feb 13th 2015

University of St. Thomas Biology Department

- clean/stock lab supplies
- prepare for biology lab course experiments
- help take inventory and manage chemical waste

“Summer Scholar” Position Seasonal

June 1st—Aug 10th, 2012

Shangri La Botanical Gardens and Nature Center, Orange, TX

- research local flora/fauna and present to classes open to public
- dissect and analyze local flora/fauna
- organize lessons and hands-on activities for students (grades 3rd through 8th)
- cultivate various flowering plants in the production greenhouses

Student Support Advisor Part Time

Oct 25th 2012—July 23rd, 2014

University of St. Thomas, Advising Office of Crooker Center, Houston, TX

- assist students when scheduling classes
- present/teach UST information technology services
- general clerical duties & office maintenance (clean, keep printers filled, etc.)

HONORS AND AWARDS

- *Outstanding Student in Bioinformatics, 2016*
Awarded by biology department at UST to one student
- *Summa Cum Laude (similarly: Dean’s List from 2012 fall-2016 spring)*
- *1st Place in 2013 Presidents Prize Competition at Entomological Society of America Conference*
Presented research poster in Austin, TX
- *2nd Place in 2014 Presidents Prize Competition at Entomological Society of America Conference*
Presented research poster in Portland, OR

EXTRA-CURRICULAR ACTIVITIES

Biological Honor Society Officer-Elect

Beta Beta Beta: Nu Chapter, UST

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| ▪ Events Coordinator | 2013-2014 |
| ▪ Secretary | 2014-2015 |

VOLUNTEER WORK (143.5 total hours; \$700 raised)

Camp Phever: phenylketonuria children

UTHSC McGovern Pediatric Genetics, July 7th-12th 2019

Houston Hospice General Volunteering (35 hours)

Houston Hospice, Houston TX

BP MS 150 Ride (24 hours; \$400 raised)

Houston to Austin, April 12th-13th 2014

“Camp Cardiac” Volunteer Counselor (16 hours)

University of St. Thomas, Houston TX, Jul 29th-30th 2013

Children’s Alopecia Project Fundraising

(16 hours; \$300 raised)

University of St. Thomas, Houston TX, April 2013

“Zoo Boo” Volunteer (13 hours)

Houston Zoo, Houston TX,

-Oct 21st 2012, Oct 11th 2014, Oct 25th 2014

“Education Rainbow Challenge” Project

(10 hours)

Black Middle School, Houston TX

-Nov 3rd 2012

Davis High School, Houston TX

-Jan 26th 2013

Nursing Home Card-making/Delivery (5 hours)

ManorCare Nursing Home, Houston TX

-Nov 1st, 25th 2014

“Medical Bridges” Volunteer (5 hours)

Medical Bridges, Houston TX

-Mar 2nd 2013, Mar 29th 2014

Children’s Museum Volunteer (10.5 hours)

Children’s Museum of Houston, Houston TX,

Mar 14th 2013, Oct 13th 2013, Mar 13th 2015

Campus Recycling (5 hours)

University of St. Thomas, Houston TX

Oct 1st, Oct 8th, Oct 11th, Nov 21st 2013

ESA Conference (6 hours)

*2013 Entomological Society of America Conference,
Austin TX, Nov 12th 2013*

UST STEM Alumni Event (6 hours)

University of St. Thomas, Houston TX, Oct 25th 2014

Harmony Science Fair (4 hours)

Harmony Public School, Houston TX, Jan 24th 2014

Front-Desk Clerk (4 hours)

Houston Food Bank, Houston TX, Aug 18th 2012