

CURRICULUM VITAE

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DEGREES:

B.S.	Civil Engineering, Oregon State University, 2012 (Cum Laude)
M.Eng.	Civil Engineering, Oregon State University, 2013
Ph.D.	Civil Engineering, Oregon State University, 2019 (Minor in Mathematics)

FIELDS OF SPECIALIZATION:

Fluid Mechanics and Coastal Engineering
Risk Analysis of Geotechnical Engineering Structures
Numerical Modeling

CURRENT EMPLOYMENT:

Instructor of Civil Engineering, Oregon State University

TEACHING POSITIONS (OSU):

- Lab Instructor Assistant for Water Resources Fluid Mechanics (CE 547: Fall 2012)
- Graduate Teaching Assistant (GTA) / Lab Instructor for Materials (CCE 321: Fall 2014, Fall 2015, Fall 2016, & Fall 2018)
- GTA for Engineering Graphics and Design (CCE 201: Winter 2014)
- GTA for Hydraulics (CEM 311: Spring 2016, Spring 2018)
- Instructor of Record for Hydraulics (CEM 311: Winter 2016, Winter 2017, Spring 2017, Winter 2018, Winter 2019, Spring 2019, Winter 2020)
- Instructor of Record for Hydraulic Engineering (CE 313: Winter 2018)
- GTA for Engineering Orientation (ENGR 111: Fall 2017)
- GTA for Statics (ENGR 211: Summer 2018)
- REU Graduate Student Coordinator (SURF: Summer 2018)
- Instructor of Record for Honors Statics (ENGR 211H: Fall 2019)
- Instructor of Record for Statics (ENGR 211: Summer 2020)
- Instructor of Record for Geotechnical Engineering (CE 373: Spring 2021)

TEACHING POSITIONS (LBCC):

- Part-time faculty for MTH 075 (Fall 2019)
- Math Tutor (Fall 2019)

TEACHING ACCOMPLISHMENTS (OREGON STATE UNIVERSITY):

- Fall 2015 Overall Teaching Evaluation Score for CCE 321: 5.7 / 6.0
- Winter 2016 Overall Teaching Evaluation Score for CEM 311: 5.8 / 6.0
- Spring 2017 Overall Teaching Evaluation Score for CEM 311: 5.9 / 6.0
- Winter 2018 Overall Teaching Evaluation Score for CEM 311: 5.8 / 6.0
- Winter 2018 Overall Teaching Evaluation Score for CE 313: 5.8 / 6.0
- Winter 2019 Overall Teaching Evaluation Score for CEM 311: 5.9 / 6.0
- Spring 2019 Overall Teaching Evaluation Score for CEM 311: 5.7 / 6.0
- Summer 2020 Overall Teaching Evaluation Score for ENGR 211: 5.7/6.0
- Honorable Mention in *Honors Link* (News and stories about the honors experience at Oregon state). “Honors Remote Learning Perspectives – Lorenzo Curtis”. Lucas Yao. 09/23/2020.
- 2018 Graduate Teaching Assistant Award

PUBLISHED WORK:

KO, H. T.-S., **KNOWLES, J.**, and YEH, H. (2016). Bore-impact forces on elongated structures. *International Conference Coastal Engineering, Istanbul, Turkey*.

KNOWLES, J., YEH, H. (2018). On shoaling of solitary waves. *Journal of Fluid Mechanics*. **848**, 1073-1097.

YEH, H. and **KNOWLES, J.** (2018). Mach reflection of a solitary wave: seeking the four-fold amplification. *The Proceedings of Workshop on Nonlinear Water Waves: RIMS Kokyuroku*. Kyoto University.

KNOWLES, J., YEH, H. (2019). Fourfold amplification of solitary-wave Mach reflection at a vertical wall. *Journal of Fluid Mechanics*. **861**, 517-523.

YEH, H., KO, H., **KNOWLES, J.**, & HARRY, S. (2020). Solitary waves perturbed by a broad sill. Part 2. Propagation along the sill. *Journal of Fluid Mechanics*, **883**.

KNOWLES, J. and YEH, H. (2020) Long-Wave Penetration through a Laterally Periodic Continental Shelf. *Journal of Marine Science and Engineering* **8.4: 241**.

KNOWLES, J., Ma, Y., Evans, M. (2020). DEM modelling of 3D polyhedrons with applications to gabion rockfall barriers. *P&G Conference*, In Review.

REVIEWER:

- Springer Nature: *Journal of Ocean Dynamics*
- Springer Nature: *Experiments in Fluids*
- *Coastal Engineering*
- *Journal of Geotechnical and Geoenvironmental Engineering*

TALKS / PRESENTATIONS:

- Graduate Research Expo 2015: On the upstream propagation of tsunamis (poster)

- Recent Advances in Nonlinear Waves Conference 2017: Predicting tsunami wave height over a continental shelf (poster)
- Applied Mathematics and Computation (AMC) Seminar 2018: On the shoaling of solitary waves (talk)
- Oregon State University Coastal Group “Brownbag” Seminar 2019: On undular bores and solitary waves in variable depth (talk)
- Young Coastal Scientists and Engineers Conference (YCSEC) 2019: Shoaling solitary waves on a plane beach (talk)
- Guest Lecturer for MTH 323 at Oregon State University 2020: Euler model for water waves (talk)

RESEARCH POSITIONS:

- Drafting and construction of hydraulic flume supervised by Dr. Leon of OSU (Summer 2011)
- Design, assembly, and manufacturing of self-calibrating wave gages and electrical control components (Summer 2011 - Winter 2012)
- Video data analyst for buoy research at Hinsdale Wave Research Laboratory, supervised by Dr. McDougal (Winter 2012)
- Research assistant for groundwater tracer tests, supervised by Dr. Istok of OSU (Summer 2013 & Summer 2014)
- Graduate Research Assistant (GRA) under Dr. Yeh (adviser) on Bore Impact Study (Winter 2013 – Summer 2014)
- GRA under Dr. Coleri of OSU on the study of asphalt emulsions and pavements in the Lab and in the Field (Summer 2015 & Summer 2016)
- GRA under Dr. Yeh on Laser Induced Fluorescence (LIF) measurements on solitary waves propagating over a broad sill (Summer 2019)
- Postdoc: Research associate at OSU: Gabion barrier project with ODOT (2019 - 2021)
Numerical modeling / coding

PROFESSIONAL ACTIVITIES:**Registration:**

Engineer in Training (EIT) Civil Engineering, State of Oregon # 86002EI

Professional Societies:

American Society of Civil Engineers

Honors Societies:

Phi Kappa Phi

Chi Epsilon (Secretary of OSU Chapter)

Golden Key

CURRENT RESEARCH:

- Wave amplitude forecasting associated with tsunami events using a higher order pseudo-spectral method
- DEM modeling and risk / life-cycle analysis of rockfall protection devices (gabion barriers) deployed by Oregon Department of Transportation (ODOT)