

Daniel T. Gillins, Ph.D., P.L.S.

1315 East-West Highway

Silver Spring, MD 20910

(202) 630-8752

daniel.gillins@noaa.gov**Education:**

PhD	Civil Engineering University of Utah, Salt Lake City, UT January 2008-December 2012 GPA 3.98
MS	Civil Engineering University of Utah, Salt Lake City, UT January 2006-December 2007 GPA 3.97
BS	Civil Engineering Honors: magna cum laude University of Utah, Salt Lake City, UT Aug. 1999-Dec. 1999, Aug. 2002-Dec. 2005 GPA 3.98, 115 units (semester)
Surveying Credits	Surveying Technology—17 semester credit hours in surveying Salt Lake Community College, Salt Lake City, UT January 2006-May 2007 GPA 3.96

Work Experience:

<u>ZP-1372-4</u> Geodesist (ZP-4)	National Oceanic & Atmospheric Administration, National Geodetic Survey 1315 East-West Highway, Silver Spring, MD 20910 October 31, 2016 – present Supervisor: Vicki Childers, Ph. 240-533-9643 <ul style="list-style-type: none"> • OPUS Development Team Lead, 5/05/2021 – present <ul style="list-style-type: none"> ○ Lead development of surveying software and supporting manuals ○ Coordinate with upper leadership and committees ○ Lead group of OPUS analysts • Acting Spatial Reference Systems Division Chief, 5/12/2020 – 11/06/2020. <ul style="list-style-type: none"> ○ Supervised two branches and three staff employees ○ Led division meetings and tasked employees ○ Certified timesheets ○ Submitted monthly reports and briefed agency on division activities ○ Led personnel actions for the division, hiring new employees, etc. • Acting CORS Branch Chief, 3/16/2020 – 5/11/2020. <ul style="list-style-type: none"> ○ Supervised eight employees ○ Led branch meetings and tasked employees ○ Answered questions for the branch and gave technical advice • Evaluated, processed, and adjusted numerous NGS GNSS surveys, including for IGLD 2015, Southern Louisiana 2016, GSVS 2017, and GUAM/CNMI 2017. • Serve or served as project manager for four Project Review Board (PRB) Projects: <ul style="list-style-type: none"> ○ Development of OPUS-Projects for including RTK/RTN GNSS data ○ Development of new height modernization GNSS survey guidelines ○ IGLD 2015 (completion of data processing & adjustments) ○ Establish standard geodetic surveying file formats for data transfer • Research geodetic surveying methods for pending release of the new National Spatial Reference System in 2022 <ul style="list-style-type: none"> ○ Assist with methods for adjusting leveling networks after 2022 ○ Evaluate accuracy of RTN GNSS data and its use for surveying bench marks ○ Provide advice and research to support draft project plan for Foundation CORS
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- Conduct empirical testing on the accuracy of OPUS-Projects, OPUS-S, and OPUS-RS
- Serve as committee member and subject matter expert for assisting NGS projects:
 - Collection of GNSS on bench marks to support tool for transforming from current datums to new reference frames and datum in 2022
 - Development of new NSRS spatial database
- Present scientific research results at national and international scientific and professional conferences, and provided training on geodetic surveying.
 - Given webinars for NGS, ASCE, numerous DOTs
 - Presented at international conferences (FIG), national conferences (ASCE), and professional surveying conferences (Maryland, Utah, California, Virginia, Pennsylvania)
 - Published over 40 scholarly papers
 - Provided training on processing and adjustments of GNSS and leveling networks to NGS employees

Assistant Professor,
Geomatics Engineering

Oregon State University, School of Civil & Construction Engineering
101 Kearney Hall, Corvallis, OR 97331

January 1, 2013 – October 14, 2016

Supervisor: Jason Weiss, Ph. 541-737-3052

- Develop an externally funded research program in surveying and geomatics engineering; direct and supervise research expenditures of roughly \$200,000/yr
- Lead as principle investigator for 10 research projects totaling \$1.4 million. Assign and delegate work, execute projects to meet deadlines
- Recruit, interview, supervise and advise 4 – 7 graduate surveying students; assist them with meeting goals and writing theses, papers, and technical reports
- Teach 3 classes per year; 2 graduate-level courses in GNSS surveying theory and least squares adjustments; one undergraduate-level surveying theory course
- Publish scholarly works in surveying and geomatics engineering journals and national conferences.
- Give research presentations at state, national, and international conferences
- Review scholarly journal articles

GS-1373-12 Land Surveyor,
Assistant Program Manager
(GS-12)

U.S. Department of Agriculture Forest Service, Region 4
324 25th Street, Ogden, UT 84401

January 30, 2011 – December 15, 2012

Supervisor: Belle Craig, Ph. 801-625-5112

- Serve as Assistant Regional Surveyor of the Boundary & Title Management, managing survey and title information for over 34 million acres of federal land
- Serve as technical expert, provide training to staff on GNSS, GIS and CAD
- Subject-matter expert on GIS tools for managing boundary demarcation programs
- Review complex survey records; provide surveying advice to staff
- Lead review of title claims against the Region, such as claims under Revised Statutes 2477 and 2339 (regarding R.O.W. for roads and water conveyance systems)
- Brief regional attorney on boundary, cadastral survey, and title issues
- Review legal descriptions and assist with land transfers for the realty office
- Review regional survey program's annual accomplishments; ensure targets were met and properly documented; interview candidates for jobs within program

GS-1373-9/11 Land Surveyor
(GS-9/11)

U.S. Department of Interior, Bureau of Land Management
2370 S. 2300 W., West Valley City, UT 84119

February 3, 2008 – January 29, 2011

Supervisor: Ron Baugh, Ph. 801-550-6678

- Survey land using GNSS equipment and total stations
- Serve as field crew chief, party chief, and chief of parties on numerous projects
- Lead official surveys to mark and identify public land boundaries
- Conduct dependent resurveys, original surveys, and riparian surveys
- Draft survey data into official survey plats using AutoCAD and GIS
- Report work in official field notes recorded in the U.S. Public Land Survey System
- Search, evaluate, and monument public land corners
- Research surveys and deeds at both Federal and State offices to determine land status and ownership
- Conduct surveys on BLM, BIA, Indian Trust, BOR, and USFS lands

GS-0817-5/7 Survey Technician (GS-5/7) U.S. Department of Interior, Bureau of Land Management (same address as above)
May 30, 2006 - February 2, 2008
 Supervisor: Ron Baugh, Ph. 801-550-6678

- Serve as field crew chief
- Conduct surveys using GPS equipment and total stations
- Assist lead surveyor in drafting plats using AutoCAD and writing field notes

GS-0817-4/5 Survey Technician (GS-4/5) U.S. D.A., Forest Service
 125 S. State St., Salt Lake City, UT 84138
June 2, 2002 - May 27, 2006
 Supervisor: Henry Peterson, Ph. 801-558-9751

- Conduct landline, topographic, and site surveys using GPS units and total stations
- Draft Forest Service survey plats using AutoCAD Land Desktop

Skills:

- Proficient in NGS software: ADJUST, OPUS-Projects, PAGE-NT
- Experience in LINUX operating systems, and Perl and Javascript programming languages
- Proficient in commercial software: AutoCAD, Trimble Geomatics Office (TGO), Trimble Business Center (TBC), Leica Geo Office (LGO), Esri ArcGIS, CAPD, MATLAB, MathCAD, Microsoft Office, and STAR*NET
- Expert in running survey equipment including GNSS Survey Equipment, total station, and automatic level

Certifications and Licenses:

- Passed NCEES PE (Principles & Practice of Engineering) exam 2016
- Professional Land Surveyor, Oregon 2015--current
- Professional Land Surveyor, Utah 2008--current
- OPUS-Projects Training 2014
- Ground School for private pilot's written exam 2015
- Advanced Cadastral Training I 2009
- Cadastral Automated Plat Drafting Training Certificate 2008
- Passed NCEES FE (Fundamentals of Engineering) exam 2005
- Autodesk Land Desktop Training 1 2004

Awards and Achievements:

- Recognition for 15 years of service in the USA government 2021
- Outstanding Reviewer Award, ASCE *Journal of Surveying Engineering* 2015
- Superior Rating on EPAPS (Forest Service & BLM) 2007--2012
- Civil Engineering Departmental Scholarship 2008
- Wayne Brown Fellowship (largest fellowship in the College of Engrg.) 2007
- Joseph P. & Ruth S. Howa Scholarship 2006
- Star Award—U.S. Forest Service 2006
- Lloyd E. Malm Award (Chemistry Scholarship) 2003
- Honors at Entrance Scholarship at the University of Utah 1999--2005
- First place in regional Architectural Drafting competition 1999
- First in Class at Weber High School 1999
- High School Mathematics Letter 1998
- Presidential Academic Fitness Award 1993, 1996, 1999
- Eagle Scout 1994
- Kiwanis Hope of America Award 1993

Professional Organizations, Leadership, and Membership:

- American Society of Civil Engineering (ASCE), Utility Engineering & Surveying Institute (UESI)
 - **Governor**, UESI, Oct. 2019 – current
 - **Chief Editor**, ASCE Manual of Practice #195: Surveying and Geomatics Engineering
 - **Associate Editor**, ASCE *Journal of Surveying Engineering*, January 2020 - current
 - **Past-chair**, Surveying and Geomatics Division, Oct. 2018 – Sept. 2018

- **Chair**, Surveying and Geomatics Division, Oct. 2017 – Sept. 2018
- **Chair**, Surveying Committee of Surveying & Geomatics Division, Oct. 2015 – Sept. 2017
- **Editorial Board Member**, *ASCE Journal of Surveying Engineering*, Oct. 2016 – Dec. 2019
- American Association for Geodetic Surveying (AAGS)
 - **Past-President**, Jan. 2021 – Dec. 2021
 - **President**, Jan. 2020 – Dec. 2020
 - **Director**, Jan. 2016 – Dec. 2019
- Surveying and Geomatics Educators Society (SaGES)
- National Society of Professional Surveyors (NSPS)
- Chi Epsilon Civil Engineering Honor Society
- Phi Kappa Phi Honor Society

References:

Mark Armstrong, Geodesist
National Geodetic Survey (retired)
Ph. 541-914-5877
mlarmst@comcast.net

Michael Dennis, Geodesist
National Geodetic Survey
Ph. 928-322-0956
Michael.dennis@noaa.gov

Chris Parrish, Associate Professor
Oregon State University, School of Civil &
Construction Engrg.
Ph. 541-737-5688
Christopher.parrish@oregonstate.edu

Select Publications

Peer-reviewed Journal Papers:

- Javadnejad, F.¹, Slocum, R.K., Gillins, D.T., Olsen, M.J., and Parrish, C.E. (2021). “Dense Point Cloud Quality Factor (DPQF) for Accuracy Assessment of Image-based 3D Reconstruction,” *J. Surv. Eng. (ASCE)*, 147(1):04022021-1.
- Sharifi-Mood, M., Gillins, D.T., Olsen, M.J., Franke, K., and Bartlett, S.F. (2020). “A Geotechnical Database for Utah (GeoDU) Enabling Quantification of Geotechnical Properties of Surficial Geologic Units for Geohazard Assessments,” *Earthquake Spectra (ESRI)*, 36(1): 422-451.
- Javadnejad, F., Gillins, D.T., Parrish, C.E., and Slocum, R. (2019). “A Photogrammetric Approach to Fuse Natural Color and Thermal Infrared UAS Imagery in 3D Point Cloud Generation,” *International Journal of Remote Sensing (ISPRS)*, DOI: [10.1080/01431161.2019.1641241](https://doi.org/10.1080/01431161.2019.1641241).
- Gillins, D.T., Kerr, D., and Weaver, B. (2019). “Evaluation of the Online Positioning User Service for Processing Static GPS Surveys: OPUS-Projects, OPUS-S, OPUS-Net, and OPUS-RS,” *J. Surv. Eng. (ASCE)*, 145(3):05019002.
- Kim, S.-K., Park, J., Gillins, D., and Dennis, M. (2018). “On Determining Orthometric Heights from a Corrector Surface Model Based on Leveling Observations, GNSS, and a Geoid Model,” *J. Appl. Geodesy*, De Gruyter, 12(4):323-333, <https://doi.org/10.1515/jag-2018-0014>.
- Jamieson, M., and Gillins, D.T. (2018). “Comparative Analysis of Online Static GNSS Post-Processing Services,” *J. Surv. Eng. (ASCE)*, 144(4):05018002.
- Allahyari, M., Olsen, M., Gillins, D.T., and Dennis, M. (2018). “A Tale of Two RTNs: Rigorous Evaluation of GNSS Survey Observations in Real-time Networks,” *J. Surv. Eng. (ASCE)*, 144(2):05018001.
- Weaver, B., Gillins, D.T., and Dennis, M. (2018). “Hybrid Survey Networks: Combining Real-time and Static GNSS Observations for Optimizing Height Modernization,” *J. Surv. Eng. (ASCE)*, [10.1061/\(ASCE\)SU.1943-5428.0000244](https://doi.org/10.1061/(ASCE)SU.1943-5428.0000244), 144(1):05017006.
- Sharifi-Mood, M., Olsen, M.J., Gillins, D.T., and Mahalingam, R. (2017). “Performance-based, seismically-induced landslide hazard mapping of West Oregon,” *Soil Dynamics and Earthquake Engineering*, Elsevier, **103**:38-54, <https://doi.org/10.1016/j.soildyn.2017.09.012>.
- Javadnejad, F., Gillins, D.T., Higgins, C., and Gillins, M.N. (2017). “BridgeDex: Proposed Web-GIS Platform for Managing and Interrogating Multiyear and Multiscale Bridge-Inspection Images,” *J. of Computing in Civil Engrg. (ASCE)*, [10.1061/\(ASCE\)CP.1943-5487.0000710](https://doi.org/10.1061/(ASCE)CP.1943-5487.0000710), 31(6):04017061.
- Gillins, D.T., Olsen, M.J., and Schultz, R.J. (2017). “The Current State of Surveying Education within Civil Engineering Programs in the United States,” *Surveying and Land Information Science (SaLIS)*, **76**(1):5-15.
- Gillins, D., and Eddy, M. (2017). “Comparison of GPS Height Modernization Surveys Using *OPUS-Projects* and Following NGS-58 Guidelines,” *J. Surv. Eng. (ASCE)*, [10.1061/\(ASCE\)SU.1943-5428.0000196](https://doi.org/10.1061/(ASCE)SU.1943-5428.0000196), 143(1):05016007.
- Gillins, D.T., Olsen, M.J., and Schultz, R.J. (2014). “Educating Students for the Extensive Range of Surveying Activities,” *Surveying and Land Information Science (SaLIS)*, **73**(1):21-30.
- Gillins, D.T., and Bartlett, S.F. (2014). “Multilinear Regression Equations for Predicting Lateral Spread Displacement from Soil Type and Cone Penetration Test Data,” *J. Geotech. Geoenviron. Eng.*, [10.1061/\(ASCE\)GT.1943-5606.0001051](https://doi.org/10.1061/(ASCE)GT.1943-5606.0001051), 140(4):04013047; published online 12/5/2013.

Select Conference Papers:

- Gillins, D.T., Heck, J., Scott, G., Jordan, K., and Hippenstiel, R. (2019). “Accuracy of GNSS Observations from Three Real-time Networks in Maryland, USA,” *Proc. 2019 FIG Working Week, Hanoi, Vietnam*, April 2019, 15 pp.
- Javadnejad, F., Simpson, C.H., Gillins, D.T., Claxton, T., and Olsen, M.J. (2017). “Comparison of Unmanned Aircraft System-Based Photogrammetry with Terrestrial Laser Scanning for Determining Pipe Dimensions,” *Proc. Pipelines 2017 (ASCE)*, Phoenix, AZ, August 2017.
- Gillins, D.T., and Dennis, M. (2017). “Inclusion of Leveling with GNSS Observations in a Single, 3-D Geodetic Survey Network Adjustment,” *Proc., FIG Working Week 2017, Helsinki, Finland*, May 2017, 15 pp.
- Javadnejad, F. and Gillins, D. (2016). “Unmanned Aircraft Systems-Based Photogrammetry for Ground Movement Monitoring,” *Proc. Pipelines 2016 (ASCE)*: pp. 1000-1011.; doi: 10.1061/9780784479957.094, Kansas City, MO, July 2016.

¹ Underlined names are advised students

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List of Volunteer Activities to UESI and other professional organizations

- American Society of Civil Engineering (ASCE), Utility Engineering & Surveying Institute (UESI)
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 - **Editorial Board Member**, ASCE *Journal of Surveying Engineering*, Oct. 2016 – Dec. 2019
- American Association for Geodetic Surveying (AAGS)
 - **Past-President**, Jan. 2021 – Dec. 2021
 - **President**, Jan. 2020 – Dec. 2020
 - **Director**, Jan. 2016 – Dec. 2019

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Please find enclosed my application to run as President-Elect of UESI. I am currently serving in the final year of my three-year term as an elected governor on the Board of Governors of UESI. I have enjoyed my term, and I feel I've learned a great deal about the many facets, benefits, and challenges facing our young institute. I am saddened that my term is already coming to an end because I feel like I want to contribute more to the organization. Accordingly, I am applying for President-Elect in the hopes it will give me more time and opportunities to serve the institute.

I am a representative of the Surveying and Geomatics Division in UESI, a division in which I have been active since I formed and began chairing the "Surveying Committee" in 2015. I later became the chair of this division. I vividly remember voting to approve the proposal to create UESI, which involved joining what was then known as the Geomatics Division with the Pipelines Division. I viewed the proposal as an opportunity for the new institute to become a worldwide leader in engineering surveying.

As President, my main goal is to continue the great momentum already in place for the institute in generating products and services to promote utility engineering. In addition, I want to expand our missing in supporting engineering surveying. I believe our membership and prominence will grow as we focus our efforts on *both* utility engineering and engineering surveying.

Over the past several years, I have been serving as the chief editor for a new manual of practice entitled "Surveying and Geomatics Engineering". This manual is scheduled to be printed in May of 2022, and the experience has deepened my understanding of the need for developing products for our professions. I have also given numerous webinars and presentations related to this effort through ASCE.

As President, I will work to increase the number of webinars given by UESI on topics related to utility engineering, pipelines, surveying and underground mapping, geodetic surveying, and other technical topics of practical and professional interest. I believe these educational webinars are important and will increase attention and participation. I will also look to increase our institute's engagement in social media. Our participation in platforms like LinkedIn will raise awareness of our young institute.

In addition, I will look for greater university engagement. As an example, there are over two dozen civil engineering programs that offer surveying as an area of emphasis. There are also other programs that offer utility engineering as an emphasis. I believe all of these universities should be made aware of UESI. We want to engage their professors in attending and presenting at UESI events, and provide them with resources that they can use in their classes. As a former professor at Oregon State University, I know that teaching resources would be valuable, and I would have loved to send my students to UESI competitions and conferences. It is critical for our institute to grow student involvement, as they will be the future of our profession.

Thank you very much for considering my application. It's been a privilege serving UESI, and I have learned much from its leaders and staff.