김 석 현

- 직책: Research Associate, Ph.D., M.Eng.
- 소속: Water Research Centre, School of Civil and Environmental Engineering, UNSW Sydney, NSW 2052, Australia
- 이메일: seokhyeon.kim@unsw.edu.au; seokhyn.kim@gmail.com
- 웹페이지: https://steelpl.github.io/

학력

- 2013 년 7 월 – 2017 년 11 월 **UNSW Sydney*** 공학박사 (수자원/환경원격탐사)
  - ** QS (종합): 43 위; QS (토목): 12 위; ARWU (수자원): 8 위*
  - 학위논문: *Improvements and applications of satellite-derived soil moisture for flood forecasting*
  - 지도교수: Ashish Sharma, Fiona Johnson (joint), Yi Liu (co)
- 2006 년 3 월 – 2008 년 2 월 **고려대학교** 사회환경시스템공학과 공학석사 (수자원시스템공학)
  - 학위논문: *Study for improving water distribution system reliability* (영문)
  - 지도교수: 김중훈
- 1997 년 3 월 – 2001 년 2 월 **고려대학교** 토목환경공학과 공학사

주요경력

- 2017 년 4 월 – 현재 **UNSW Water Research Centre** 박사후 연구원
- 2013 년 7 월 – 2017 년 3 월 **UNSW Sydney** 박사과정 (논문제출: 2017/3; 학위수여: 2017/11)
- 2008 년 1 월 – 2013 년 7 월 **현대건설** 대리 토목설계실 수자원/환경 설계담당

병역사항

- 2001 년 10 월 – 2004 년 9 월 **대한민국육군** (중위 만기전역)

수상 및 장학금 수혜

- 2021 년 5 월 **UNSW Sydney** Strategic Research Fund (AUD 4,000)
- 2017 년 5 월 – 2017 년 8 월 **UNSW Sydney** Postgraduate Writing Fellowship (AUD 6,500)
- 2013 년 7 월 – 2017 년 1 월 **UNSW Sydney** Tuition fee, Stipend and Top-up Scholarship
- 2007 년 – 2007 년 **고려대학교** 조교장학금; **GS 건설** 장학금; **한국연구재단** BK21 2 단계 장학금

논문

[Impact Factor/ #Citations]

1. Kim S., Dong J., Sharma A. (2021) A triple collocation-based comparison of three L-band soil moisture datasets, SMAP, SMOS-IC, and SMOS, over varied climates and land covers, *Front. Water.*, 3, 64, **[-/0]**
2. Kim S., Mehrotra R., Kim S.(교신), Sharma A. (2021) Assessing countermeasure effectiveness in controlling cyanobacterial exceedance in riverine systems using probabilistic forecasting alternatives, *J. Water Resour. Plan. Manag.*, 147(10), 04021062, **[3.404/0]**
3. Kim, S., Sharma, A., Liu, Y., & Young, S. I. (2021). Rethinking Satellite Data Merging: From Averaging to SNR Optimization, *TechRxiv* (submitted to *IEEE TGRS*), **[-/0]**
4. Kim S., Mehrotra R., Kim S., Sharma A. (2021) Probabilistic forecasting of Cyanobacterial concentration in riverine systems using environmental drivers, *J. Hydrol.*, 593, 125626, **[4.500/1]**
5. Zhang R., Kim S.(교신), Sharma A., Lakshmi V. (2021). Identifying relative strengths of SMAP, SMOS-IC, and ASCAT to capture temporal variability using a model combination approach, *Remote Sens. Environ.*, 252, 112126, **[9.085/2]**
6. Kim S., Anabalón A., Sharma A. (2021) An Assessment of Concurrency in Evapotranspiration Trends Across Multiple Global Datasets, *J. Hydrometeorol.*, 22(1), 231-244, **[3.891/0]**
7. Kim S., Pham H., Liu Y., Marshall L., Sharma A. (2020). Improving the combination of satellite soil moisture datasets by considering error cross-correlation: A comparison between triple collocation (TC) and extended

double instrumental variable (EIVD) alternatives, *IEEE Trans. Geosci. Remote Sens.*, Early Access, 1-11, [5.855/1]

8. Magan B., Kim S., Wasko C., Barbero R., Moron V., Nathan R., Sharma A. (2020). Impact of atmospheric circulation on the rainfall-temperature relationship in Australia, *Environ. Res. Lett.*, 15(9), 094098, [6.096/2]
9. Kim S., Kim S.(교신), Mehrotra R., Sharma A. (2020). Predicting cyanobacteria occurrence using climatological and environmental controls, *Water Res.*, 175, 115639, [9.130/5]
10. Kim T., Ley T., Kang S., Davis J., Kim S., Amrollahi P. (2020). Using Particle Composition of Fly Ash to Predict Strength and Resistivity of Concrete, *Cem. Concr. Compos.,* 107, 103493, [6.257/8]
11. Kim S., Ajami H., Sharma A. (2020). Using remotely sensed information to improve vegetation parameterization in a semi-distributed hydrological model (SMART) for upland catchments in Australia, *Remote Sens.,* 12(18), 3501, [4.509/0]
12. Moradi S., Agostino A., Gandomkar Z., Kim S., Hamilton L., Sharma A., Henderson R., and Leslie G. (2020). Quantifying natural organic matter concentration in water from climatological parameters using different machine learning algorithms, *H2Open Journal*, 3(1), 328-343, [-/3]
13. Kim S., Eghdamirad S., Sharma A., Kim J. H. (2020). Quantification of uncertainty in projections of extreme daily precipitation, *Earth and Space Sci.*, 2020, e2019EA001052-T, [2.312/4]
14. Hagan D., Wang G., Kim S., Parinussa R., Liu Y., Ullah W., Bhatti S., Ma X., Jiang T., Su B. (2020). Maximizing Temporal Correlations in Long-Term Global Satellite Soil Moisture Data Merging, *Remote Sens.*, 12 (13), 2164, [4.509/4]
15. Kim S., Zhang R., Pham H., Sharma A. (2019). A review of satellite-derived soil moisture and its usage for flood estimation, *Remote Sens. Earth Syst. Sci.*, 2, 225-246, [-/9]
16. Pham H., Kim S., Johnson F., Marshall L. (2019). Using 3D robust smoothing to fill land surface temperature gaps at the continental scale, *Int. J. Appl. Earth Obs. Geoinf.*, 82, 10879, [4.650/9]
17. Kim S., Jun H. D., Yoo D. G., Kim J. H. (2019). A framework for improving reliability of water distribution systems based on a segment-based minimum cut-set approach, *Water*, 11(7), 1524, [2.544/3]
18. Zhang R., Kim S.(교신), Sharma A. (2019). A comprehensive validation of the SMAP Enhanced Level-3 Soil Moisture product using ground measurements over varied climates and landscapes, *Remote Sens. Environ.*, 223, 82-94, [9.085/38]
19. Kim S., Sharma A. (2019). The role of floodplain topography in deriving basin discharge using passive microwave remote sensing, *Water Resour. Res.,* 55(2), 1707-1716, [4.309/9]
20. Khan U., Ajami H., Tuteja N., Sharma A., Kim S. (2018). Catchment Scale Simulations of Soil Moisture Dynamics Using an Equivalent Cross-Section based Hydrological Modelling Approach, *J. Hydrol.*, 564, 944-966, [4.500/11]
21. Kim S., Paik K., Johnson F., Sharma A. (2018). Building a flood warning framework for ungauged locations using low resolution, open access remotely sensed surface soil moisture, precipitation, soil and topographic information, *IEEE J. Sel. Top. Appl. Earth Obs. Remote Sens.*, 11(2), 375-387, [3.827/16]
22. Kim S., Balakrishnan K., Liu Y., Johnson F., Sharma A. (2017). Spatial Disaggregation of Coarse Soil Moisture Data by Using High Resolution Remotely Sensed Vegetation Products, *IEEE Geosci. Remote. Sens. Lett.*, 14(9), 1604-1608, [3.833/13]
23. Kim S., Parinussa R., Liu Y., Johnson F., Sharma A. (2016). Merging Alternate Remotely-Sensed Soil Moisture Retrievals Using a Non-Static Model Combination Approach, *Remote Sens.*, 8 (6), 518, [4.509/10]
24. Silva A., Subasinghe K., Rajapaksha C., Raveenthiran K., Kim S., Young M., Perera H. N. R., Araki S. (2016). Assessment of Design Alternation via 2D Physical Modelling in the Main Breakwater of Colombo Port Expansion Project. *J. Jpn. Soc. Civ. Eng., Ser. B2 (Coastal Engineering)*, 72(2), I_1129-I_1134, [-/0]
25. Kim S., Parinussa R., Liu Y., Johnson F., Sharma A. (2015). A framework for combining multiple soil moisture retrievals based on maximizing temporal correlation, *Geophys. Res. Lett.*, 42 (16), 2015GL064981, [4.497/31]
26. Kim S., Liu Y., Johnson F., Parinussa R., Sharma A. (2015). A global comparison of alternate AMSR2 soil moisture products: Why do they differ? *Remote Sens. Environ.*, 161 (0), 43-62, [9.085/123]

27. Jun H. D., Kim S., Yoo D. G., Kim J. H. (2009). Evaluation of the reliability improvement of a water distribution system by changing pipe, *J. Korea Water Resour. Assoc.*, 42 (6), 505-511, **[-/5]**

❖ 컨퍼런스

1. Young M., Hayman-Joyce J., Kim S. (2012). Use of Single Layer Concrete Armour Units as Toe Reinforcement, *Coast. Eng. Proc.*, 1 (33), 48, **[-/3]**

학술대회 발표 (주발표자)

1. Kim S., Zhang R., Sharma A., Lakshmi V. Improvements of satellite observations through data merging: status and challenges, *AGU fall meeting 2020*, San Francisco, CA, USA
2. Kim S., Pham H., Liu Y., Sharma A., Marshall L. Combining geophysical variables for maximizing temporal correlation without reference data, *MODSIM 2019*, Canberra, Australia
3. Kim S.(초청), Guo Y., Wasko C., Sharma A. On soil moisture, rain and flood extremes in a warming climate – using satellite remote sensing to define future antecedent conditions, *KSCC 2018*, Jeju, Republic of Korea
4. Kim S., Ajami H., Sharma A. Incorporating an operational satellite-derived leaf area index into a computationally efficient semi-distributed hydrologic modelling application (SMART), *MODSIM 2017*, Hobart, Australia
5. Kim S., Liu Y., Johnson F., Sharma A. A temporal correlation-based approach for spatial disaggregation of remotely sensed soil moisture, *AGU fall meeting 2016*, San Francisco, CA, USA
6. Kim S., Liu Y., Johnson F., Parinussa R., Sharma A. Reducing Structural Uncertainty in AMSR2 Soil Moisture Using a Model Combination Approach, *AGU fall meeting 2014*, San Francisco, CA, USA
7. Kim S., Liu Y., Johnson F., Parinussa R., Sharma A. Improvement of Soil Moisture Dataset Combining AMSR2 Soil Moisture Products, *OzEWEX 2014*, Canberra, ACT, Australia

자격증

- Professional Engineer – Skill Level 1 Civil Engineer (Engineers Australia); **토목기사** (한국산업인력공단)

전문분야 및 보유기술

수문학/수자원공학, 인공위성 원격탐사, MATLAB, Python, ArcGIS/QGIS

연구경력

- 2017 년 4 월 – 현재 **UNSW Water Research Centre** 박사후 연구원
  - 기후변화-환경 민감도 분석
  - 원격탐사 데이터 검증, 개선 및 수문학적 활용
  - 녹조발생 예측 모형 개발
- 2013 년 7 월 – 2017 년 3 월 **UNSW Sydney** 박사과정
  - 원격탐사 데이터 검증, 개선 및 수문학적 활용
- 2006 년 3 월 – 2008 년 2 월 **고려대학교** 석사과정
  - 상수관망 신뢰도 개선 및 최적화

교육경력

- 2017 년 4 월 – 2020 년 3 월 **UNSW Sydney** Post-doctoral teaching assistant
  - 과목: *Catchment and Water Resources Modelling* (UG), *Water Resources Engineering* (PG)
  - 코디네이팅 및 컨설팅 (620 명), 강의, 강의 및 평가자료 준비, Moodle(수업관리시스템) 관리
  - 석사(연구) 연구지도 (1 명): 논문 3 편 게재 (논문번호 2, 4, 9)
  - 석사(코스워크) 및 학부(honour) 논문 지도 (22 명): 논문 3 편 게재 (논문번호 5, 8, 18)
- 2013 년 7 월 – 2017 년 3 월 **UNSW Sydney** 조교
- 2006 년 3 월 – 2007 년 12 월 **고려대학교** 조교

학술활동

- **학술지 리뷰**: *Remote Sensing of Environment, Journal of Hydrology, Environmental Research Letters, KSCE Journal of Civil Engineering* 등
- **학회 세션 주관**: AOGS 2020, MODSIM 2021
- **저널**: MDPI Remote Sensing (topic editor, volunteer reviewer)
- **학회:** 대한원격탐사학회 (정회원), 한국수자원학회 (정회원), 대한토목학회 (정회원), Engineers Australia (정회원); Australian Water Association (정회원)

참여프로젝트

- 박사후 연구원
  - 2020 년 4 월 – 현재: *Assessing Water Supply Security in a Nonstationary Environment* (DP200101326) funded by Australian Research Council (ARC)
  - 2019 년 5 월 – 2020 년 4 월: *A Fourier approach to address low-frequency variability bias in hydrology* (DP180102737) funded by ARC
  - 2017 년 4 월 – 2019 년 5 월: *Adapting catchment monitoring and portable water treatment to climate change* (LP160100620) funded by ARC
- 박사과정
  - 2013 년 7 월 – 2017 년 3 월: *Reducing Flood Loss –Data Assimilation Framework for Improving Forecasting Capability in Sparsely Gauged Regions* (DP140102394) funded by ARC
  - 2015 년 5 월 – 2015 년 5 월: NASA SMAP 토양습윤 데이터 검증 캠페인 (현장 데이터 측정)/Soil Moisture Active Passive Experiment – the 4th campaign (SMAPEx-4)

참고인

- Prof. Ashish Sharma (박사과정 및 박사후 과정 지도교수): School of Civil and Environmental Engineering, UNSW Sydney, a.sharma@unsw.edu.au
- A/Prof. Fiona Johnson (박사과정 지도교수, joint supervisor): School of Civil and Environmental Engineering, UNSW Sydney, f.johnson@unsw.edu.au
- Dr. Yi Liu (박사과정 지도교수, co-supervisor): School of Civil and Environmental Engineering, UNSW Sydney, Australia, yi.liu@unsw.edu.au
- Dr. Raj Mehrotra (연구실 선임 연구원): School of Civil and Environmental Engineering, UNSW Sydney, Sydney, raj.mehrotra@unsw.edu.au
- Dr. Robert Parinussa (연구실 前선임 연구원): Cycling Sports Group/Cannondale, Amsterdam, North Holland, Netherlands, r_parinussa@hotmail.com
- Prof. Joong Hoon Kim (김중훈) (석사과정 지도교수): 고려대학교 건축사회환경공학과, jaykim@korea.ac.kr