

## 김석현(金哲賢) 이력서



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## 학력

- 2013 년 7 월 – 2017 년 11 월 **UNSW Sydney\* 공학박사** (수자원/환경 원격탐사)
  - \* UNSW Sydney 순위 (2021) – QS (종합): 44 위; QS (토목공): 12 위; AWRU (수자원): 5 위
  - 학위논문: “Improvements and applications of satellite-derived soil moisture for flood forecasting”
  - 지도교수: [Ashish Sharma](#), [Fiona Johnson](#) (joint supervisor), [Yi Y. Liu](#) (co-supervisor)
- 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 & top-up Scholarship
- 2007 년 가을학기 **고려대학교** 조교장학금
- 2006 년 가을학기 **GS 건설** 장학금
- 2006 년 봄학기 **한국연구재단** BK21 2 단계 장학금

## 논문실적

[IF: Impact Factor/C: #Citations from Google Scholar]

### ❖ 학술지 논문

- [1] Kim S., Mehrotra R., **Kim S. [corr-auth]**, Sharma A. (2021) Assessing countermeasure effectiveness in controlling cyanobacterial exceedance in riverine systems using probabilistic forecasting alternatives, *Journal of Water Resources Planning and Management*, Accepted, [IF:3.405/C:0]
- [2] **Kim, S.**, Sharma, A., Liu, Y. Y., & Young, S. I. (2021). Rethinking Satellite Data Merging: From Averaging to SNR Optimization, *TechRxiv* (submitted to IEEE TGRS), [IF:NA/C:0]

- [3] Kim S., Mehrotra R., **Kim S.**, Sharma A. (2021) Probabilistic forecasting of Cyanobacterial concentration in riverine systems using environmental drivers, *Journal of Hydrology*, 593, 125626, [IF:4.405/C:0]
- [4] Zhang R., **Kim S.**, [corr-auth], Sharma A., Lakshmi V. (2021). Identifying relative strengths of SMAP, SMOS-IC, and ASCAT to capture temporal variability using a model combination approach, *Remote Sensing of Environment*, 252, 112126, [IF:8.218/C:2]
- [5] **Kim S.**, Anabalón A., Sharma A. (2021) An Assessment of Concurrency in Evapotranspiration Trends Across Multiple Global Datasets, *Journal of Hydrometeorology*, 22(1), 231-244, [IF:3.891/C:0]
- [6] **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 Transactions on Geoscience and Remote Sensing*, Published (online), [IF:6.120/C:1]
- [7] 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, *Environmental Research Letters*, 15(9), 094098, [IF: 6.192/C:2]
- [8] Kim S., **Kim S.**, [corr-auth], Mehrotra R., Sharma A. (2020). Predicting cyanobacteria occurrence using climatological and environmental controls, *Water Research*, 175, 115639, [IF:7.913/C:4]
- [9] 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, *Cement and Concrete Composites*, 107, 103493, [IF:5.127/C:6]
- [10] **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 Sensing*, 12(18), 3501, [IF: 4.509/C:0]
- [11] 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, [IF: NA/C:1]
- [12] **Kim S.**, Eghdamirad S., Sharma A., Kim J. H. (2020). Uncertainty Quantification of uncertainty in projections of extreme daily precipitation, *Earth and Space Science*, 2020, e2019EA001052-T, [IF: 2.15/C:3]
- [13] 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 Sensing*, 12 (13), 2164, [IF: 4.509/C:4]
- [14] **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, [IF: NA/C:5]
- [15] 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, [IF:4.846/C:7]
- [16] **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, [IF:2.524/C:2]
- [17] Zhang R., **Kim S.**, [corr-auth], Sharma A. (2019). A comprehensive validation of the SMAP Enhanced Level-3 Soil Moisture product using ground measurements over varied climates and landscapes, *Remote Sensing of Environment*, 223, 82-94, [IF:8.218/C:36]
- [18] **Kim S.**, Sharma A. (2019). The role of floodplain topography in deriving basin discharge using passive microwave remote sensing, *Water Resources Research*, 55(2), 1707-1716, [IF:4.14/C:7]
- [19] 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, *Journal of Hydrology*, 564, 944-966, [IF:4.405/C:11]
- [20] **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. of Selected Topics in Applied Earth Observations and Remote Sensing*, 11(2), 375-387, [IF:3.392/C:17]
- [21] **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 Geoscience and Remote Sensing Letters*, 14(9), 1604-1608, [IF:3.534/C:12]
- [22] **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 Sensing*, 8 (6), 518, [IF: 4.509/C:10]
- [23] 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. *Journal of Japan Society of Civil Engineers, Ser. B2 (Coastal Engineering)*, 72(2), I\_1129-I\_1134, [IF: NA/C:0]
- [24] **Kim S.**, Parinussa R., Liu Y., Johnson F., Sharma A. (2015). A framework for combining multiple soil moisture retrievals based on maximizing temporal correlation, *Geophysical Research Letters*, 42 (16), 2015GL064981, [IF:4.58/C:31]
- [25] **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 Sensing of Environment*, 161 (0), 43-62, [IF: 8.218/C:121]
- [26] 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, *Journal of Korea Water Resources Association*, 42 (6), 505-511, [IF: NA/C:6]

## ❖ 컨퍼런스 논문

- [1] M. Young, J. Hayman-Joyce, **S. Kim**. (2012). Use of Single Layer Concrete Armour Units as Toe Reinforcement, *Proceedings of the Coastal Engineering Conference*, 1 (33), 48, [IF: NA/C:3]

## 학술대회 발표 실적 (주발표자)

- [1] **Kim S.**, Zhang R., Sharma A., Lakshmi V. Improvements of satellite observations through data merging: status and challenges, *American Geophysical Union (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, *The 23<sup>rd</sup> International Congress on Modelling and Simulation (MODSIM2019)*, 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, *The Korean Society of Climate Change Research (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), *The 22<sup>nd</sup> International Congress on Modelling and Simulation (MODSIM2017)*, Hobart, Australia
- [5] **Kim S.**, Liu Y., Johnson F., Sharma A. A temporal correlation-based approach for spatial disaggregation of remotely sensed soil moisture, *American Geophysical Union (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, *American Geophysical Union (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, *The Australian Energy and Water Exchange Initiative (OzEWEX) 2014*, Canberra, ACT, Australia

## 보유자격증

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

## 보유기술 및 전문분야

환경데이터 분석, 인공위성 원격탐사, 수리/수문학, 최적화, MATLAB, Python, ArcGIS, SAGA-GIS

## 연구경력

- 2017 년 4 월 – 현재: **UNSW Water Research Centre** 박사후 연구원
  - 장기간 시계열 데이터 해석을 통한 온도-유량, 온도-강수량 상관관계 규명
  - 수문, 유속 및 총인(總磷) 시계열 데이터를 활용한 한국 4 대강 녹조발생 예측 모형 개발
  - 원격탐사 데이터를 적용한 GIS 기반 수문 모형 개선 및 검증
  - 원격탐사 데이터를 이용한 홍수 모니터링 방법 개선 및 검증
  - 원격탐사기반 환경데이터 해석, 검증 및 개선 (공간해상도, 정확도)
- 2013 년 7 월 – 2017 년 3 월: **UNSW Sydney** 박사과정
  - 원격탐사 강우 및 토양습윤 데이터를 활용한 홍수 예측 방법 개발
  - 원격탐사 식생지표를 활용한 토양습윤 데이터의 공간 해상도 향상
  - 원격탐사 데이터 합성을 통한 데이터 성능 향상
  - 원격탐사 토양습윤 데이터 검증 및 생성 알고리즘 비교
- 2006 년 3 월 – 2008 년 2 월 **고려대학교** 석사과정
  - 상수관망의 신뢰도 개선 및 최적화

## 교육경력

- 2017 년 4 월 – 2020 년 3 월            **UNSW Sydney** Post-doctoral teaching assistant
  - 담당과목: 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 [1] [3] [8] )
  - 석사(코스웍) 및 학부(honour) 논문 지도 (22 명): 논문 3 편 게재 (논문번호 [4] [7] [17] )
- 2013 년 7 월 – 2017 년 3 월            **UNSW Sydney** 조교
- 2006 년 3 월 – 2007 년 12 월        **고려대학교** 조교

## 학술활동

- **학술지 리뷰:** International Journal of Applied Earth Observation and Geoinformation; Journal of Hydrology; Remote Sensing of Environment; Stochastic Environmental Research and Risk; PLOS ONE; KSCE Journal of Civil Engineering; ISPRS Journal of Photogrammetry and Remote Sensing; Environmental Research Letters; International Journal of Geo-Information
- **학회 세션:** Asia Oceania Geosciences Society (AOGS) 2020, International Congress on Modelling and Simulation (MODSIM) 2021
- **저널:** MDPI Remote Sensing (topic editor)
- **학회:** 대한원격탐사학회 (정회원), 한국수자원학회 (정회원), 대한토목학회 (정회원), Engineers Australia (정회원); Australian Water Association (정회원)

## 참여프로젝트

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

## 참고인 목록

- **Professor Ashish Sharma** (박사과정 및 박사후 과정 지도교수): School of Civil and Environmental Engineering, UNSW Sydney, [a.sharma@unsw.edu.au](mailto:a.sharma@unsw.edu.au)
- **A/Professor Fiona Johnson** (박사과정 지도교수, joint supervisor): School of Civil and Environmental Engineering, UNSW Sydney, [f.johnson@unsw.edu.au](mailto:f.johnson@unsw.edu.au)
- **Professor Yi Y. Liu** (박사과정 지도교수, co-supervisor): School of Geographical Sciences, Nanjing University of Information Science and Technology (NUIST), [yi.liu@nuist.edu.cn](mailto:yi.liu@nuist.edu.cn)

- **Dr. Raj Mehrotra** (연구실 선임 연구원): School of Civil and Environmental Engineering, UNSW Sydney, Sydney, [raj.mehrotra@unsw.edu.au](mailto:raj.mehrotra@unsw.edu.au)
- **Dr. Robert Parinussa** (연구실 前선임 연구원): Cycling Sports Group/Cannondale, Amsterdam, North Holland, Netherlands, [r\\_parinussa@hotmail.com](mailto:r_parinussa@hotmail.com)
- **Professor Joong Hoon Kim (김중훈)** (석사과정 지도교수): 고려대학교 건축사회환경공학과, [jaykim@korea.ac.kr](mailto:jaykim@korea.ac.kr)