



TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO

ID CODE 5069

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at

**Dipartimento di Scienze Agrarie e Ambientali – Produzione, Territorio, Agroenergia**

Scientist- in - charge: **Dott. Masseroni**

**Julian David Reyes Silva**

## CURRICULUM VITAE

### PERSONAL INFORMATION

Surname	Reyes Silva
Name	Julian David

### PRESENT OCCUPATION

Appointment	Structure
Associate researcher	Institute of Urban Water Management, Technische Universität Dresden

### EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Degree			
Specialization			
PhD	Engineering	Technische Universität Dresden	Submitted June 2021, waiting for defense
Master	Hydroscience and Engineering	Technische Universität Dresden	2016
Degree of medical specialization			
Degree of European specialization			
Other: Bachelor of Science	Environmental Engineering	Universidad de Los Andes	2013

### REGISTRATION IN PROFESSIONAL ASSOCIATIONS

Date of registration	Association	City



## FOREIGN LANGUAGES

Languages	level of knowledge
Spanish	advance knowledge (Mother language)
English	advance knowledge
Italian	medium knowledge
German	medium knowledge

## AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2016-2019	PhD grant under the framework of the International Research Training Group “Resilient Complex Water Networks”. Supported by TU Dresden’s Institutional Strategy and funded by the Excellence Initiative Program of the German Research Foundation (DFG).

## TRAINING OR RESEARCH ACTIVITY

<u>UNIVERSITY AND SCHOOL EDUCATION</u>	
2016-2021	<p><b>Technische Universität Dresden</b>, PhD studies at the Institute of Urban Water Management and as part of the International Research Training Group (IRTG) “Resilient Complex Water Networks” joint initiative between the Helmholtz-Centre for Environmental Research (UFZ) with their Center of Advanced Water Research (CAWR) and Purdue University (USA).</p> <p>Research topic: “<i>Influence of Network Structure on the Function of Urban Drainage Systems</i>”. (Defense pending)</p>
2014-2016	<p><b>Technische Universität Dresden</b>, Studied Master Program of Hydro Science and Engineering</p> <p>Master Thesis: <i>Modelling a sewer, storm water and combined subnetwork of Bogotá, Colombia</i> (Written in English). Final Grade: 1.2 in German system.</p>
2009-2013	<p><b>Universidad de Los Andes</b>, Bogotá, Colombia, Bachelor of Science in Environmental Engineer.</p> <p>Bachelor thesis: <i>Quantification of the Drinking Water Contamination with Hexavalent Chromium and its Relationship with Tanneries. Study Case: San Benito, Bogotá</i> (Written in Spanish). Final Grade: 5 out of 5, in Colombian system</p>



1995-2009	Study preschool, primary and secondary school at Colegio Italiano Leonardo Da Vinci, in Bogotá, Colombia. Dual degree program, i.e. obtained Colombian and Italian titles (Esame di Maturità)
<b>PROFESIONAL EXPERIENCE</b>	
2020-actual	<b>Technische Universität Dresden.</b> Associate researcher for the KlimaKonform project. Main goal of this project is to evaluate the potential impacts and adaptation measures of urban drainage systems to extreme events such as flash floods, droughts and heavy storms
2020-2021	Work as a lecturer in the Myanmar Hydrology Training Program for the Department of Meteorology and Hydrology (Myanmar), from the World Meteorological Organization (WMO) and coordinated by the UK Center for Ecology & Technology.  Activities: development and teaching of theoretical and practical lectures in the following topics: "Introduction to Hydrological and Hydraulic Modelling", "Hydrological Modelling and Flow Routing" and "Advance Hydrological Modelling and Forecasting"
2016-today	<b>Technische Universität Dresden,</b> Supervision of Master thesis works  <b>Technische Universität Dresden.</b> Assistance and support with lectures of master programs, particularly Urban Water I and II, Integrated Water Resource Management I and II, and Modelling of Urban Drainage Systems
2017	Development of an urban drainage model for the town Königswalde, Germany, with the aim to design and evaluate the implementation of a rain retention tank
2013-2014	<b>Universidad de Los Andes.</b> Research Assistant at the Environmental Engineering Research Center (CIIA) of the Civil and Environmental Engineering Department.  Research project: Quantification of Hexavalent Chromium in drinking water, its relation to the presence of tanneries and health impacts on general population. Study Case: San Benito neighborhood, Bogotá, Colombia.  Other functions: Teacher's assistant in the course <i>Urban Hydrology</i> .



## PROJECT ACTIVITY

Year	Project
2020-today	Module B3, KlimaKonform Project ( <a href="https://klimakonform.uw.tu-dresden.de/">https://klimakonform.uw.tu-dresden.de/</a> )
2016-2020	International Research Training Group (IRTG) "Resilient Complex Water Networks" ( <a href="https://www.ufz.de/cawr/index.php?en=43129">https://www.ufz.de/cawr/index.php?en=43129</a> )

## PATENTS

Patent

## CONGRESSES AND SEMINARS

Date	Title	Place
04th-18th August 2017	International Synthesis Summerschool Network functional dynamics - Technological, Human & Ecological Dimensions	Dresden, Germany
September 2017.	14th IWA/IAHR International Conference on Urban Drainage (ICUD)	Pargue, Czech Republic
September 2018	11th International Conference on Urban Drainage Modelling	Palermo, Italy
December 2018.	7th International Conference on Complex Networks and Their Application	Cambridge, UK
13th and 17th of May 2019.	Spring School Complex Networks: Theory, Methods, and Applications	Como, Italy
August 2019	9th International Conference on Sewer Processes and Networks (submitted and accepted work, not direct attendance)	Aalborg, Denmark
August 2019	Scientific Area Networks (SANs): Dynamics of complex networks,	Dresden, Germany

## PUBLICATIONS

Articles in reviews
Wagner, B., <b>Reyes-Silva, J.D.</b> , Förster, C., Benisch, J., Helm, B., Krebs, P. <i>Automatic Calibration Approach for Multiple Rain Events in SWMM Using Latin Hypercube Sampling: UDM 2018</i> . New Trends in Urban Drainage Modelling (January 2019). DOI: 10.1007/978-3-319-99867-1_74
Klinkhamer, C., Zischg, J., Krueger, E., Yang, S., Blumensaat, F., Urich, C., Kaeseberg, T., Paik, K., Borchardt, D., <b>Reyes-Silva, J.D.</b> , Sitzenfrei, R., Rauch, W., McGrath, G., Krebs, P., Ukkusuri, S., Rao, P.S.C. <i>Topological Convergence of Urban Infrastructure Networks</i> (February 2019). arXiv: 1902.01266 [nlin.AO]
Zischg, J., <b>Reyes-Silva, J.D.</b> , Klinkhamer, C., Krueger, E., Krebs, P., Rao, P.S.C., Sitzenfrei, R. <i>Complex Network Analysis of Water Distribution Systems in Their Dual Representation Using Isolation Valve Information</i> . World Environmental and Water Resources Congress 2019, pp 484-496. DOI: 10.1061/9780784482353.046



McGrath, G., Kaeseberg, T., <b>Reyes-Silva, J.D.</b> , Jawitz, J.W., Blumensaat, F., Borchardt, D., Mellander, P., Paik, K., Krebs, P., Rao, P.S.C. <i>Network topology and rainfall controls on the variability of combined sewer overflows and loads</i> . <i>Water Resource Research</i> (2019), 55 DOI:10.1029/2019WR025336
<b>Reyes-Silva, J.D.</b> , Zischg, J., Klinkhamer, C. P., Rao, P.S.C., Sitzenfrei, R., Krebs, P. <i>Centrality and shortest path length measures for the functional analysis of urban drainage networks</i> . <i>Applied Network Science</i> (2020) 5: 1. <a href="https://doi.org/10.1007/s41109-019-0247-8">https://doi.org/10.1007/s41109-019-0247-8</a>
<b>Reyes-Silva, J.D.</b> , Helm, B., Krebs, P. <i>Meshness of sewer networks and its implications for flooding occurrence</i> . <i>Water Science and Technology</i> (2020) 81:1, pp 40-51. <a href="https://doi.org/10.2166/wst.2020.070">https://doi.org/10.2166/wst.2020.070</a>
Hesarkazzazi, S., Hajibabaei, M., <b>Reyes-Silva, J.D.</b> , Krebs, P., Sitzenfrei, R. <i>Assessing Redundancy in Stormwater Structures Under Hydraulic Design</i> . <i>Water</i> (2020), 12, 1003. <a href="https://doi.org/10.3390/w12041003">https://doi.org/10.3390/w12041003</a>
<b>Reyes-Silva, J.D.</b> , Bangura, E., Helm, B., Krebs, P. <i>The Role of Sewer Network Structure on the Occurrence and Magnitude of Combined SewerOverflows (CSOs)</i> . <i>Water</i> (2020), 12, pp. 2675 doi:10.3390/w12102675
<b>Reyes-Silva, J.D.</b> , Frauches, A.C.N.B., Rojas-Gomez, K.L., Helm, B., Krebs, P. <i>Determination of Optimal Meshness of Sewer Network Based on a Cost—Benefit Analysis</i> . <i>Water</i> (2021), 13, pp. 1090. <a href="https://doi.org/10.3390/w13081090">https://doi.org/10.3390/w13081090</a>
Janabi FA, Ongdas N, Bernhofer C, <b>Reyes Silva JD</b> , Benisch J, Krebs P. <i>Assessment of TOPKAPI-X Applicability for Flood Events Simulation in Two Small Catchments in Saxony</i> (2021). <i>Hydrology</i> ; 8(3):109. <a href="https://doi.org/10.3390/hydrology8030109">https://doi.org/10.3390/hydrology8030109</a>

Congress proceedings
<b>Reyes-Silva, J.D.</b> , Helm, B., Krebs, P. <i>Meshness of sewer networks and its implications for flooding occurrence</i> . <i>Proceedings of the 9th International Conference on Sewer Processes and Networks, Aalborg, Denmark</i> (2019).
Rojas-Gómez, K. L., Benisch, J., <b>Reyes-Silva, J. D.</b> , Mariano, R., Yang, S., Helm, B., Borchardt, D., and Krebs, P.: <i>Integrated Simulation of Particle-Bound Contaminants in Urbanised Catchments Using High-Resolution Data</i> , EGU General Assembly 2021, online, 19–30 Apr 2021, EGU21-3232, <a href="https://doi.org/10.5194/egusphere-egu21-3232">https://doi.org/10.5194/egusphere-egu21-3232</a> , 2021.

OTHER INFORMATION

<b>SUPERVISED MASTER THESES</b>
Ortiz Niño, M. A. <i>Impact of flow and contaminant diurnal patterns on pollutant load distribution during dry and wet weather conditions. Case Study: Dresden, Germany</i> (2016). Supervisores: <b>Reyes-Silva, J.D.</b> , Helm, B., Krebs, P.
Bangura, E.K. <i>Influence of sewer network structure on the occurrence of combined sewer overflow (CSO) events</i> (2019). Supervisores: <b>Reyes-Silva, J.D.</b> , Helm, B., Krebs, P.



<p>Sánchez Ramírez, J.C. <i>Analysis of different low impact development (lids) configurations for the reduction of combined sewer overflows (CSOs) in the urban area of Lockwitzbach, Dresden (2019)</i>. Supervisores: <b>Reyes-Silva, J.D.</b>, Helm, B., Krebs, P.</p> <p>Schneebeck, F. <i>Significance of spatial placement and selection of stormwater control measures for receiving water impact mitigation (2020)</i>. Supervisores: <b>Reyes-Silva, J.D.</b>, Helm, B., Krebs, P.</p> <p>Bleidao Frauches, A. C. N. <i>Determination of optimal meshness of sewer network based on flood damages and pipe installation costs (2020)</i>. Supervisores: <b>Reyes-Silva, J.D.</b>, Helm, B., Krebs, P.</p> <p>Jung, J. <i>Hydrological green roof performance under varying climate regimes in Berlin and Beijing (2020)</i>. Supervisores: <b>Reyes-Silva, J.D.</b>, Tatis Muvdi, R., Krebs, P.</p> <p>Novoa Vazquez, D. <i>Development of an agent based model for the assessment of pluvial urban flooding and its impacts (2020)</i>. Supervisores: <b>Reyes-Silva, J.D.</b>, Aljanabi, F., R., Krebs, P.</p> <p>Mariano, R.L. <i>Urban land covers as sources of sediments in stormwater quality models (2021)</i>. Supervisores: <b>Reyes-Silva, J.D.</b>, Rojas Gomez, K.L., Krebs, P.</p> <p>Calenberg, A. <i>Entwicklung eines wassersensiblen Erschließungs- sowie Entwässerungskonzeptes am Beispiel der geplanten Infrastruktur im Riedboden, Müllheim (2021)</i>. Supervisores: <b>Reyes-Silva, J.D.</b>, Müller, S., Krebs, P.</p> <p>Ramos Rodríguez, S. P. <i>Identification of an optimal wastewater management system in a rural area in the Atrauli block – India (2021)</i>. Supervisores: <b>Reyes-Silva, J.D.</b>, Khurelbaatar, G., Krebs, P.</p> <p>Cherian, S. <i>Identifying the risks and potential solutions for the improvement of current wastewater management practices in a pre-selected region in India (2021)</i>. Supervisores: <b>Reyes-Silva, J.D.</b>, Rahman, K.Z., Krebs, P.</p>	
<p><b>Computer literacy</b></p> <ul style="list-style-type: none"><li>Geographic Information System Programs (ArcGIS &amp; QGIS)</li><li>Mathematical Modeling and Statistical Analysis (MATLAB, Python)</li><li>Hydrologic-hydrodynamic Modelling (EPA SWMM)</li><li>Spreadsheet Analysis (Microsoft Excel)</li><li>Word Processing (Microsoft Word)</li><li>Presentation Programs (Microsoft PowerPoint)</li></ul>	

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

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Place and date: Dresden, Germany; 15.09.2021