Supercomputing and Distributed Systems
Camping School 2023

Carlos Jaime Barrios Hernandez, PhD
General Co-Chair
@carlosjaimebh @SuperCCam #SCCAMP2023
Cartagena de Indias, Colombia May 14th 2023
Science and Advanced Technology for All

Experts - Scientists (Biologists, Architects, Physicists)

Experts Scientists – Computer and Informatics Informatic, Math Applied

Technology - Infrastructure

Decision Takers

Citizens, All
SC-CAMP Spirit

SC-Camp is a summer school and non-profit event about Super Computing and Distributed Systems. It proposes a series of courses around the thematic of High Performance Computing (HPC) with an important focus on practical sessions.

SC-Camp exploit HPC infrastructures from anywhere, even located in the middle of the nature.

SC-Camp is an initiative of researchers from different countries inspired by share the HPC knowledge as an itinerant event to a different place every year.
HPC Outreach since 2010...

- 2010- Catay (Piedecuesta), Colombia
- 2011- Universidad de Costa Rica, Turrialba, Costa Rica
- 2012- Universidad de los Andes, Vegasol (Mérida), Venezuela
- 2013- Instituto Tecnológico de Colima, Colima, México
- 2014- Centro Colombiano de Biología Computacional y Bioinformática (BIOS), Manizales, Colombia
- 2015- Centro de Investigación Avanzada, Abacus-CINVESTAV, Toluca (Edo. De México), México
- 2016- Centro de Investigacion e Innovacion en Bioinformatica y Fotonica, Universidad del Valle, Cali, Colombia
- 2017- Escuela Superior de Ingenieria, Cadiz, Spain
- 2018- Đại học Công nghệ Thông tin Hữu nghị Việt Nam - Hàn Quốc
- 2019- Madrid, Spain – CIEMAT
- 2020- SCCAMPV (RedCLARA)
- 2021- SCCAMPV2 (RENATA, Colombia)
- 2022- SCCAMPH (SC3UIS, Colombia and CADS, México)
- 2023 – Universidad de Cartagena, Colombia (May)
- 2024 – University of Luxembourg, Luxembourg (Summer)
- 2025 – 3 Candidatures: Senegal, Thailand and Vietnam
• More than 500 students in 10 years participated at #SCCAMP
• Participants from 26 Countries (Alger, Colombia, Cuba, Greece, Panama, China, EAU, India, Venezuela, Japan, France, Ecuador, Germany, México, Costa Rica, Niger, Guatemala, Nicaragua, Spain, Belgium, USA, Switzerland, Italy, Luxembourg, Brazil, and Vietnam)
• 6 Countries hosted #SCCAMP (Colombia, México, Venezuela, Costa Rica, Spain and Vietnam)
• 3 Education Networks Involved: RedCLARA, CUDI and RENATA
• 2 Advanced Computing Collaborations involved: RISC2 and SCALAC
• 3 Continents at world (America, Europe, and Asia)
• Inclusivity (20% of participants are women)
• 37 Instructors from 10 Countries among 15 versions (France, Brazil, Colombia, Chile, México, Luxembourg, Germany, Czech Republic, Spain, USA, Costa Rica, Greece, Serbia, Venezuela, and Italy)
• International Governments and non-centralized institutions support SCCAMP
• Private Industry is involved in the support.
• Local Institution Hosting of each SCCAMP are a strong partnership with us!
• All instructors and speakers are volunteers!
#SCCAMP2023 Special Topics

- Good Practices in HPC Ecosystems Interaction
  - Including Parallel Programming Technics for Scientific Simulations
- Towards in Advanced Computing Platforms
- Acceleration
- Quantum Computing
- Deep Learning
#SCCAMP2023 Agenda

## SC-Camp 2023 Program

<table>
<thead>
<tr>
<th>Day</th>
<th>Sunday 14/05/2023</th>
<th>Monday 15/05/2023</th>
<th>Tuesday 16/05/2023</th>
<th>Wednesday 17/05/2023</th>
<th>Thursday 18/05/2023</th>
<th>Friday 19/05/2023</th>
<th>Saturday 20/05/2023</th>
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<tbody>
<tr>
<td>Topic</td>
<td>Introduction to HPC Ecosystems</td>
<td>HPC Platforms and Environments</td>
<td>Parallel Programming Models</td>
<td>Parallel Programming Patterns</td>
<td>Advanced Patterns in Scientific Computing</td>
<td>Towards Advanced Scientific Computing</td>
<td>SC-Camp Conclusion</td>
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<tr>
<td>9:00 - 10:00</td>
<td>Keynote I</td>
<td>Keynote II</td>
<td>Keynote III</td>
<td>Keynote IV</td>
<td>Collaborative Project Results</td>
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<td>10:00 - 10:30</td>
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<td>Closing of SC-Camp &amp; Presentation of SC-Camp 2024</td>
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<tr>
<td>10:30 - 12:30</td>
<td>HPC Platforms Interaction</td>
<td>Introduction to OpenMP and MPI</td>
<td>Introduction to GPU Computing</td>
<td>Quantum Computing Simulation</td>
<td>HPC for the Simulation of Particles</td>
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<td>12:30 - 14:00</td>
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<td>Lunch Break</td>
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<td>14:00 - 15:00</td>
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<td>15:00 - 16:00</td>
<td>Welcome</td>
<td>Introduction to HPC Platforms Interaction Hands-on</td>
<td>Parallel Programming Hands-on</td>
<td>GPU Computing and Deep Learning Hands-on</td>
<td>Collaborative Project Introduction</td>
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<td>Cultural Activity</td>
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<td>16:00 - 17:00</td>
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<td>17:00 - 18:00</td>
<td>Day 1 Q&amp;A</td>
<td>Day 2 Q&amp;A</td>
<td>Day 3 Q&amp;A</td>
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#SCCAMP2023 Recommendations

1. **Enjoy all the courses**, and please, as questions to the instructors. Please ask the instructors and staff if you have problems, dudes, or technical issues.

2. **Be respectful**: Treat all participants, speakers, organizers, and event staff respectfully and kindly. Avoid making offensive comments or disrespecting other people.

3. **SCCAMP seeks to promote collaboration**, academic networking, and friendship. Take advantage of networking opportunities at the event. Introduce yourself to other participants, exchange contact information, and follow up with people you meet after the event.

4. Please, follow the rules in the Universidad de Cartagena, San Agustin Claustro and the hotel Bahia.

5. **Be punctual**: Arrive at the event on time (Starts at 8:45 a.m., after the lunch break and 2:00 p.m. Attendees in the hotel, transportation leaves the hotel at 8:15 am and returns at 5:15 p.m.)

6. Please observe [www.sc-camp.org](http://www.sc-camp.org) for any changes.

7. Cartagena de Indias is one of the safest cities in Colombia. However, it is a very touristic city. Pay special attention to possible scammers and be careful with your belongings.

8. Create social media content using #SCCAMP2023
#SCCAMP2023 Instructors

Xavier Besseron, PhD (France-Luxembourg)
Co-Chair SCCAMP
Research Engineer, Université du Luxembourg
International Instructor on HPC Development
Research Areas: HPC, HPC Applications Development, Large Scale Architectures, Performance Evaluation and Data Analytics
Extreme Sports (Snowboard, Surf) - Nature

Alvaro Estupiñan Donoso, PhD (Colombia-Luxembourg)
Invited Speaker
Research Scientist, Université du Luxembourg
Researcher in Chemical engineering / Energy / Materials science & engineering / Mechanical engineering / Modelling, Thermal Engineering, Grain Size Distribution, Tungsten oxides, Powder metallurgy
Music, Art - Nature
#SCCAMP2023 Instructors

**Esteban Meneses, PhD (Costa Rica)**
Invited Speaker  
Director, CENAT – Costa Rica  
International Instructor on HPC Development  
Research Areas: HPC, HPC Applications Development, Large Scale Architectures, Performance Evaluation and Data Analytics  
**Sports, Arts, Culture - Nature**

**Gilberto J. Diaz, MSc (Colombia-Venezuela)**
SCCAMP Instructor and Co-Founder  
Engineer, Universidad Industrial de Santander  
Researcher, System Administrator in High Performance Computing, Distributed Systems, Scientific Applications and Quantum Computing  
**Music, Food, Culture - Nature**
#SCCAMP2023 Instructors

Robinson Rivas, MSc. Pr. (Venezuela)
Co-founder SCCAMP and Co-Chair SCCAMP
International Instructor on HPC
Head of the Informatics Department of Universidad Central de Venezuela
Research Areas: HPC, Distributed and Scalable Architectures, Blockchain, HPC Teaching and Outreach, Artificial Intelligence
Music, Art, Nature and « jodedera »

Carlos J. Barrios H., PhD (Colombia)
Co-Chair and Co-Founder SCCAMP
Faculty, Universidad Industrial de Santander, Bucaramanga, Colombia
Director High Performance and Scientific Computing Center – Universidad Industrial de Santander, Colombia
Music – Extreme Sports - Nature
#SCCAMP2023 Local Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
<th>Country</th>
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<tr>
<td>Javier Antonio Montoya Martínez</td>
<td>Universidad de Cartagena</td>
<td>Colombia</td>
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<tr>
<td>Amaury Cabarcas Álvarez</td>
<td>Universidad de Cartagena</td>
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<td>Plinio Puello Marrugo</td>
<td>Universidad de Cartagena</td>
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<tr>
<td>Damaris Mendoza Hinojosa</td>
<td>Universidad de Cartagena</td>
<td>Colombia</td>
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Very Special Acknowledgment to Sugey Vilarreal, Professional Assistant of Universidad de Cartagena and the volunteer’s students.
#SCCAMP23  Special Acknowledgments
Thanks!

• Follow us in twitter: @SuperCCamp
• Or visit us: www.sccamp.org
• Share your experiences using the Hashtag: #SCCAMP23