

XIV CHILEAN CONFERENCE ON OPERATIONS RESEARCH - OPTIMA 2021



March 6,7, 8 2022



Talca, Chile
Universidad Católica del Maule
Facultad de Ciencias de la Ingeniería

PROGRAM OVERVIEW

PLENARY SESSIONS I



PHD. MARIA GRAZIA SPERANZA

Location: Main Hall

Date: Monday, March 7

Time: 09:30 - 10:30

Chair: Susana Mondschein

Title: Optimization in transportation and logistics

Abstract: Technological changes have been dramatic in the last decades. The Internet of Things (IoT) makes also objects and places capable of receiving, storing and transmitting information. Coordination opportunities are enormous in all fields. Analytics, and optimization in particular, are aimed at extracting value from the so called 'big data'. A systemic approach to problems and advanced

analytical methods are even more vital than in the past. In this talk the main trends in transportation and logistics will be presented and some research directions will be discussed with examples of integrated and collaborative problems in logistics and of traffic assignment models.

Brief biography: M.Grazia Speranza is Professor of Operations Research at the University of Brescia and currently serves as Vice Rector. She was Vice-President of IFORS in 2008-2009, President of EURO in 2011-2012 and President of TSL (Transportation Science and Logistics) society of INFORMS in 2014. Her main scientific interests are: mixed integer programming, transportation and logistics, portfolio optimization. She is author of more than 150 papers published in international journals. She has been plenary speaker at several international conferences and editor of scientific journals. She is currently co-editor of the series 'EURO Advanced Tutorials in Operational Research'.

PLENARY SESSIONS II



PH.D. JAMES J. COCHRAN

Location: Main Hall
Date: Monday, March 7
Time: 17:00 - 18:00
Chair: Víctor Albornoz

Title: A Big Data Taxonomy: Helping the General Public Understand

Abstract: Discussions of big data are ubiquitous; this speaker rarely goes a day – even on weekends – without hearing or reading some reference to big data. Thus, it is natural for instructors of statistics, operations research, applied mathematics, and analytics to field questions from their colleagues, their students, and the general public about this concept. In this talk, we will present a framework for big data that provides a foundation for dealing with these questions. The speaker will discuss the definition of big data he uses, the big data taxonomy he has developed, and the ways he demonstrates ramifications of big data in his statistics courses

Brief biography: James J. Cochran earned a BS in Economics, an MS in Economics, and an MBA from Wright State University in 1982, 1984, and 1986, respectively. He earned in PhD in Statistics from the University of Cincinnati in 1997. Dr. Cochran's research focuses on problems at the interface of statistics and operations research, and he has taught a wide variety of statistics and operations courses from the introductory undergraduate level through PhD seminars. Cochran is founding Editor-in-Chief of the Wiley Encyclopedia of Operations Research and the Management Sciences, Wiley Series in Operations Research and Management Science, and INFORMS Analytics Body of Knowledge. He has

published fourteen book chapters and over forty research articles, and he is coauthor of seven textbooks in statistics, operations research, and analytics. He has served as a consultant to a wide variety of corporations around the world. He was a founding co-chair of Statistics without Borders and a member of the founding committee for INFORMS Pro Bono Analytics initiative. He has also delivered keynote addresses to conferences in twenty-five nations.

PLENARY SESSIONS III



PHD. MAURICIO G.C. RESENDE

Location: Main Hall

Date: Tuesday, March 8

Time: 15:45 - 16:45

Chair: Armin Lüer-Villagra

Title: Logistics Optimization at Amazon: Big Data & Operations Research in Action

Abstract: We consider optimization problems at Amazon Logistics. Amazon.com is the world's largest e-commerce company, selling millions of units of merchandise worldwide on a typical day. To achieve this complex operation requires the solution of many classical operations research problems. Furthermore, many of these problems are NP-hard, stochastic, and inter-related, contributing to make Amazon Logistics a stimulating environment for research in optimization and algorithms.

Brief biography: Mauricio G. C. Resende grew up in Rio de Janeiro (BR), West Lafayette (IN-US), and Amherst (MA-US). He did his undergraduate training in electrical engineering (systems engineering concentration) at the Pontifical Catholic U. of Rio de Janeiro. He obtained an MS in operations research from Georgia Tech and a PhD in operations research from the U. of California, Berkeley. He is most known for his work with metaheuristics, in particular GRASP and biased random-key genetic algorithms, as well as for his work with interior point methods for linear programming and network flows. Dr. Resende has published over 200 papers on optimization and holds 15 U.S. patents. He has edited the Handbook of Heuristics (Springer, 2018), the Handbook of Optimization in Telecommunications (Springer, 2006), the Handbook of Massive Data Sets (Kluwer, 2002), and the Handbook of Applied Optimization (Oxford, 2002), and is coauthor of the book Optimization by GRASP (Springer, 2016). He sits on the editorial boards of several optimization journals, including Networks, Discrete Optimization, J. of Global Optimization, R.A.I.R.O., and International Transactions in Operational Research. Dr. Resende is an INFORMS Fellow.

Prior to joining Amazon.com in 2014 as a Principal Research Scientist in the transportation area, Dr. Resende was a Lead Inventive Scientist at the Mathematical Foundations of Computing Department of AT&T Bell Labs and at the Algorithms and Optimization Research Department of AT&T

Labs Research in New Jersey for over 25 years. Since 2016, Dr. Resende is also Affiliate Professor of Industrial and Systems Engineering at the University of Washington in Seattle.

PARALLEL SESSIONS

Monday, March 7
Parallel Session L1 Time: 11:00 h - 13:00 h

Application of OR Tools I.

Chair: Myriam Gaete.

	Session	Location
Astrid Oddershede, Miguel Angel Rodriguez, Luis Quezada, Cecilia Montt		
1 Veas and Pedro Palominos. An Assesment of Factors Impacting the Safety of a Stadium	L1-A1	Auditorium I
Dafne Lagos Hurel, Jaime Castillo Pincheira, Paola Leal Mora, Rodrigo		
2 Méndez and Tomás Villagra. Simulación de una sistema de colas para establecer mejoras en el desempeño productivo de una empresa chilena.	L1-A1	Auditorium I
Bárbara Verónica Schmidt and M. Susana Moreno. Planificación		
3 sustentable para optimizar la trazabilidad en la cadena de suministro de la carne	L1-A1	Auditorium I
4 María Fernanda Salazar Montenegro, Sandra Gutiérrez and Darío Beltrán. Operations Research to Improve Public Justice Administration	L1-A1	Auditorium I
Sandra Gutierrez, Fernando Jiménez, Emilio Pérez, María Fernanda Salazar		
5 Montenegro, Luis M Torres and Ramiro Torres. Minimizing the cost of customer service scheduling with release times and deadlines	L1-A1	Auditorium I
6 Myriam Gaete and Marcela González-Araya. Pronóstico de precio: un estudio de los enfoques y aplicaciones actuales	L1-A1	Auditorium I

Meta-heuristics: Theory and Applications.

Chair: Gonzalo Muñoz.

	Session	Location
David Palacios, Sebastián Dávila, Jaime Carrasco, Maximiliano Martínez,		
1 Cristobal Pais and Andrés Weintraub. Comparison of metaheuristics for the location of firebreaks in wildfires combat	L1-A2	Auditorium II
2 Ignacio Figueroa and Francisco Yuraszeck Espinosa. Simulated Annealing approach for the Fire Scheduling Problem	L1-A2	Auditorium II
3 Pablo Gutiérrez-Aguirre and Carlos Contreras-Bolton. A multioperator genetic algorithm for the traveling salesman problem with job-time	L1-A2	Auditorium II
4 Juan Leandro Parra Galvez and Denis Borenstein. Large scale supply chain design: An effective heuristic approach	L1-A2	Auditorium II
5 Daniel Bienstock, Pablo Carrasco, Chen Chen and Gonzalo Muñoz. Rank Pump: a primal heuristic for polynomial optimization	L1-A2	Auditorium II

OR Models and Applications in Healthcare I.

Chair: Lidia Angulo-Meza.

	Session	Location
1 Benjamín Madariaga, Susana Mondschein and Soledad Torres. Breast Cancer in Chile (2002-2018): Incidence, Mortality and Survival Rates	L1-A3	Auditorium III

2	Bastian Saavedra, Guido Lagos and Francisco Jara. Simulación de eventos discretos para análisis de rendimiento de programaciones médicas	L1-A3	Auditorium III
3	Diego Machado, Francisco Jara and Guido Lagos. Asignación de horas médicas utilizando Optimización Bayesiana	L1-A3	Auditorium III
4	Tomás Torres, Francisco Jara and Guido Lagos. Pronósticos de interconsultas en un servicio de salud pública chileno	L1-A3	Auditorium III
5	René Lagos, Rodrigo Guerrero, Nicolás Estay, Diego Machado and Aaron Urzúa. "Ai-box", asignación óptima de boxes en una red pública de salud	L1-A3	Auditorium III
6	Samuel Martins Drei and Lidia Angulo-Meza. Efficiency assessment of Lean Healthcare in public hospitals using Data Envelopment Analysis (DEA)	L1-A3	Auditorium III

Dealing with Uncertainty: OR Methods and Applications I.
Chair: Lluís Pla Aragones.

		Session	Location
1	Felipe Lagos. Scenario Consensus Algorithms for Solving Stochastic and Dynamic Problems	L1-A4	Auditorium IV
2	Rodrigo Mahaluf, Jaime Carrasco, Fulgencio Lisón and Andrés Weintraub. Modelos de optimización para el diseño de paisajes resistentes a incendios para la protección de la fauna silvestre	L1-A4	Auditorium IV
3	Marcelo Olivares, Andres Musalem and Daniel Yung. Balancing Agent Retention and Waiting Time in Service Platforms	L1-A4	Auditorium IV
4	Luis San Martin and Jorge Vera. Robust Capability Allocation Problem for Modular Block-Based Organizations	L1-A4	Auditorium IV
5	Giovanni Campuzano, Eduardo Lalla-Ruiz and Martijn Mes. Last-Mile Drone Delivery System Considering Uncertainty	L1-A4	Auditorium IV
6	Jordi Mateo, Wladimir Soto-Silva, Marcela Gonzalez -Araya, Lluís Pla Aragones, Francesc Solsona-Tehas. Managing a dehydrated apple plant operation through stochastic optimization	L1-A4	Auditorium IV

Monday, March 7
Parallel Session L2 Time: 14:30 h - 16:30 h

OR Tools for Project Management.
Chair: Jorge Zamorano.

		Session	Location
1	Pedro Palominos, Julio Sierra, Luis Quezada, Astrid Oddershede, Rodrigo Martin and Valerio Solomon. Un modelo de evaluación de luminarias inteligentes para proyectos de Smartcities	L2-A1	Auditorium I

2	Luz Martinez, Cecilia Montt, Luis Quezada and Astrid Oddershede. Caracterización de un Laboratorio de Biomosas basado en la Gestión del Riesgo	L2-A1	Auditorium I
3	Milena Bonacic Martinic, Juan Pérez Retamales, Héctor López Ospina and Cristian Bravo Roman. Construcción de portafolios eficientes por medio de maximización de entropía y lógica difusa	L2-A1	Auditorium I
4	Martín Solar M. Estimación del VAN en riesgo para un parque solar de energía fotovoltaica	L2-A1	Auditorium I
5	Jorge Zamorano and Felipe Rivera. Aceptabilidad de Políticas Ambientales	L2-A1	Auditorium I

Other Topics in Management Science and Data Mining I.
Chair: Sebastian Maldonado.

		Session	Location
1	Carla Vairetti, Maria Elisa Irarrazaval, Juan Perez and Sebastian Maldonado. Analítica de negocios para prevenir generación fraudulenta de tráfico en telecomunicaciones	L2-A2	Auditorium II
2	Francisca Ibáñez, Luis Aburto and Florencia Darrigrandi. Optimización de precios usando Modelo Jerárquico Bayesiano a nivel tienda	L2-A2	Auditorium II
3	Anthony D. Cho, Rodrigo Carrasco and Gonzalo Ruz. Prescriptive maintenance framework	L2-A2	Auditorium II
4	Vicente Riquelme and Luis Aburto. Predicción de motivaciones de compra usando hierarchical latent dirichlet allocation	L2-A2	Auditorium II
5	Gabriela Alfaro, Jaime Carrasco, Andres Weintraub, Alejandro Miranda and Cristobal Pais. Riesgo de incendios forestales en el interfaz urbano rural de Concepción, usando machine learning y simulación espacial	L2-A2	Auditorium II
6	Sebastián Maldonado, Carla Vairetti and Catalina Sánchez. Modelación predictiva aplicada a cobranza de deudas con información de Contact Centers	L2-A2	Auditorium II

OR Models and Applications in Transportation I.
Chair: Rosa Gonzalez.

		Session	Location
1	Martin Aleksandrov. On the Fairness and Efficiency in Emerging Vehicle Routing Problems	L2-A3	Auditorium III
2	Mathias Klapp, Matías Alvo and Gustavo Angulo. An exact solution approach for an electric bus dispatch problem	L2-A3	Auditorium III
3	Paola Leal, Jonathan Huenuman, Dafne Lagos and Jaime Castillo. Propuesta de modelo de optimización de localización y ruteo de la ubicación de puntos de recolección y transporte de residuos plásticos para la ciudad de Temuco	L2-A3	Auditorium III
4	Ying Lian, Flavien Lucas and Kenneth Sörensen. On-Demand Bus Routing Problem with Prepositioning	L2-A3	Auditorium III
5	Michell Queiroz, Flavien Lucas and Kenneth Sörensen. REQreate: instance generation tool for on-demand transportation problems	L2-A3	Auditorium III
6	Samuel Nucamendi-Guillen, Javier A. Moraga Pardo, Felipe S. Torres David and Rosa G. González-Ramírez. A latency location-routing problem with split deliveries (LLRP-SD)	L2-A3	Auditorium III

Localization Applications with Case Studies, and Optimization Theory and Algorithms.
Chair: Juan López-Salazar.

Session Location

1	Marcelo Orlando Becerra Rozas, Broderick Crawford, Ricardo Soto, Wenceslao Palma and José-Miguel Rubio. Comparación de Q-Learning y SARSA en la selección de esquemas de binarización para la resolución de problemas combinatoriales	L2-A4	Auditorium IV
2	Jaime Castillo, Priscila Olivera, Dafne Lagos and Paola Leal. Propuesta de modelo para un sistema de abastecimiento de leña seca para la región de la Araucanía	L2-A4	Auditorium IV
3	Charles Thraves, Nicolás Acevedo and María Leonor Varas. On the Outlier Detection for Standardized Tests	L2-A4	Auditorium IV
4	Luis Olivares, Pablo Miranda and Francisco Tapia. El impacto del efecto látigo en el diseño de la cadena de suministros	L2-A4	Auditorium IV
5	Paolo Latorre, Juan Perez, Héctor López-Ospina, Sebastián Maldonado and Cristián Guevara. Localización óptima de paraderos de buses de acercamiento para la retención de personal	L2-A4	Auditorium IV
6	Juan P. López-Salazar, Bryan Urra-Calfuñir and Francisco J. Tapia-Ubeda. Analyzing impact of urban growth on supply chain network design	L2-A4	Auditorium IV

Tuesday, March 8
Parallel Session M1 Time: 09:00 h - 11:00 h

Application of OR Tools II.

Chair: Victor Albornoz.

		Session	Location
	Macarena A. Vergara, Felipe I. Díaz, Luis M. Ascencio, Rosa G. Gonzalez Ramirez, Miguel Gastón Cedillo Campos and J. Rene		
1	Villalobos. Metodología basada en Costos Logísticos Totales para el análisis estratégico del Corredor Bioceánico Capricornio y su impacto en los puertos del norte de Chile	M1-A1	Auditorium I
2	Armando Meza, Juan Pérez, Héctor López-Ospina and Luís Quezada. Desarrollo de mapas estratégicos (BSC) con lógica difusa y optimización multicriterio	M1-A1	Auditorium I
3	Natalia Jorquera-Bravo and Óscar C. Vásquez. Sobre las propiedades de dominancia local en problemas de secuenciación con una sola máquina	M1-A1	Auditorium I
4	Florencia Antonia F. Peralta Yañez, María Belen Rivas Gracia, Rosa Guadalupe Gonzalez Ramirez, Daniella de Luca, Andres Garcia Echalar and Isabel C. Pérez Benitez. Gender equity analysis in the maritime port industry in Chile	M1-A1	Auditorium I
5	Lorena Alejandra Espinoza Pérez, Andrea Teresa Espinoza Pérez and Óscar C. Vásquez. Problemas ambientales de Temuco y Padre las Casas: Una aproximación desde la Dinámica de Sistemas	M1-A1	Auditorium I

6	Christian Paillacán and Victor Albornoz. Simulación dinámica para un método de explotación por hundimiento de bloques o paneles para evaluar configuración y capacidad productiva	M1-A1	Auditorium I
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Other Topics in Management Science and Data Mining II.
Chair: Miguel Carrasco.

		Session	Location
1	Gianfranco Speroni, Luis Aburto and Rodrigo Carrasco. Minimizando el Tiempo de Flujo bajo Incertidumbre en los Servidores de ALMA: Un Enfoque Basado en Machine Learning para la Estimación de Tiempos de Procesamiento e Intervalos de Confianza	M1-A2	Auditorium II
2	Ignacio Sánchez and Luis Aburto. Creando reglas de precios usando support vector machines para optimización robusta de precios	M1-A2	Auditorium II
3	Antonia Inda, Luis Aburto and Wilfredo Yushimito. Predicción de demanda y optimización de campañas de marketing en empresa de distribución de gas licuado de petróleo	M1-A2	Auditorium II
4	Camila Cartes, Luis Aburto and Rolando De la Cruz. "Optimización de settings operacionales, manteniendo la calidad en la producción de cartulinas usando herramientas de analítica predictiva y prescriptiva"	M1-A2	Auditorium II
5	Julio Lopez, Sebastián Maldonado and Miguel Carrasco. Regularized version of the minimax probability machine	M1-A2	Auditorium II
6	Miguel Carrasco, Sebastian Maldonado and Julio López. The Cobb-Douglas Learning Machine	M1-A2	Auditorium II

OR Models and Applications in Transportation II.
Chair: Virna Ortiz-Araya.

		Session	Location
1	Nataly Fiorentini Sant'Anna and Lidia Angulo-Meza. Avaliação da Eficiência das Bases de Distribuição de Combustível Derivados do Petróleo e Biocombustíveis através da Análise Envoltória de Dados	M1-A3	Auditorium III
2	Michelle Zambra, Pablo Miranda and Carola Blazquez. Sistema de recolección de residuos sólidos domiciliarios para islas rurales del archipiélago de Chiloé	M1-A3	Auditorium III
3	Cristian Cataldo-Díaz and Rodrigo Linfati. Modelos de programación lineal entera mixta para resolver el problema de ruteo de vehículos considerando los estados de carga de las baterías	M1-A3	Auditorium III
4	Helmuth Raddatz-García and Armin Lüer-Villagra. Un problema de diseño de redes de tránsito rápido considerando funciones de utilidad determinísticas de los usuarios y atributos de las rutas	M1-A3	Auditorium III
5	Steven K. Chau Yip and Armin Lüer-Villagra. Un problema de localización de hubs de maximización de beneficios con funciones de utilidad probabilísticas de los usuarios	M1-A3	Auditorium III
6	Virna Ortiz-Araya and Adela Pagès-Bernaus. Gestión sustentable de productos lácteos mediante un modelo de ruteo vehicular para una cadena de suministro	M1-A3	Auditorium III

Tuesday, March 8
Parallel Session M2 Time: 11:30 h - 13:00 h

OR Models and Applications in Agriculture I.

Chair: Leonardo Vasquez-Ibarra.

	Session	Location
1 Victor Alborno, Fernando Auat, Javiera Paz Cameron Retamal and Rodrigo Ortega. Modelo integrado de zonificación y programación de cosecha en cadenas de suministro agrícola	M2-A1	Auditorium I
2 Nicolas Eduardo Palacios Aviles, Rosa Guadalupe Gonzalez Ramirez, Santiago J. García Fuentes and J. Rene Villalobos. An operational planning model to support first mile logistics for small fresh-produce growers	M2-A1	Auditorium I
3 Bryan Urra-Calfuñir, Carlos Monardes-Concha and Pablo A. Miranda-González. Management and planning optimization of olive growers for the use of mobile Olive-Oil Mills	M2-A1	Auditorium I
4 Leonardo Vásquez-Ibarra, Alfredo Iriarte, Marcela C. González-Araya, Lidia Angulo-Meza, Ricardo Rebolledo-Leiva, María Teresa Moreira and Gumersindo Feijoo. A meta-frontier DEA approach for eco-efficiency assessment of honey production	M2-A1	Auditorium I

OR Models and Applications in Inventory Management – Production.

Chair: Rodrigo Linfati.

	Session	Location
1 Luis Quezada, Astrid Oddershede, Pedro Palominos and Cecilia Montt. Ranking Manufacturing Projects using HoQ and DEMATEL	M2-A2	Auditorium II
2 Francisco Aviles, Renato Maynard and Maichel Aguayo Bustos. A mixed integer programming model for solving a real-world production planning problem in a pulp mill	M2-A2	Auditorium II
3 Luis Aburto and Cristian Ausin. Análisis prescriptivo para optimizar la auditoría de Quiebres de Stock mediante LSTM	M2-A2	Auditorium II
4 Rodrigo Linfati, Carlos Rozas-Mellado and Carlos Picarte-Figueroa. Optimización de Esquemas de Corte Dinámicos para PYMES Madereras Mediante una Herramienta de Gestión	M2-A2	Auditorium II

Other Topics in Management Science and Data Mining III.

Chair: Jaime Carrasco.

	Session	Location
1 Jose Correa, Andrés Cristi, Paul Duetting and Ashkan Norouzi-Fard. Fairness and Bias in Online Selection	M2-A3	Auditorium III
2 Ian Mancilla, Andres Weintraub, Jaime Carrasco, Cristobal Pais and Alejandro Miranda. Automatización del proceso de obtención de cicatrices de incendios mediante herramientas de inteligencia artificial y sistemas de información geográficos	M2-A3	Auditorium III

Application of OR Tools III.

Chair: José Miguel Rubio

		Session	Location
1	Juan Francisco Venegas Gutierrez and Nicole Rojas Devia. Modelo multi-escalón para una cadena logística reversa de neumáticos fuera de uso	M2-A4	Auditorium IV
2	Raúl Soto-Concha, Ignacia Millar-Zamora and Germán Paredes-Belmar. Modelo de Programación Mixta para la Habilitación de Centros de Acopio de Ayuda Humanitaria para Zonas de Riesgo por Incendios Forestales En Valparaíso	M2-A4	Auditorium IV
3	Juan José Gutiérrez Terraza, José-Miguel Rubio and Sebastian Alejandro Ríos Perez. Aplicación de técnicas de analítica predictiva para optimizar el rendimiento de redes 4G LTE	M2-A4	Auditorium IV

Tuesday, March 8
Parallel Session M3 Time: 14:30 h - 15:30 h

OR Models and Applications in Healthcare II.

Chair: Karen Perez Rojas.

		Session	Location
1	Joaquín Siebert, Marcelo Olivares, Susana Mondschein and Patricio Foncea. Diseño de estrategias TTA en colegios: definición de políticas de testeo, trazabilidad y aislamiento para planificar asistencia segura a clases, mediante simulación y uso de modelos matemáticos.	M3-A1	Auditorium I
2	Susana Mondschein, Felipe Subiabre, Natalia Yankovic, Camila Estay, Christian Von Mühlenbrock and Zoltan Berger. Colorectal cancer trends in Chile: a Latin-American country with marked socioeconomic inequities	M3-A1	Auditorium I
3	Karen Angelica Pérez Rojas, Marcela González-Araya, Lidia Angulo Meza and Alfredo Iriarte. Análisis de eficiencia del impacto de una pandemia en la sociedad según el nivel de equidad presente en las ciudades	M3-A1	Auditorium I

OR Models and Applications in Agriculture II.

Chair: Nicolas Reyes-Reyes.

		Session	Location
1	Irlanda S. Ceballos Fuentealba, Javier E. Gómez Lagos, Marcela C. González Araya, Wladimir E. Soto Silva and Nicolás A. Reyes Reyes. Un enfoque de machine learning para la estimación de pérdida hortícola: un caso de estudio de lechugas en Chile	M3-A2	Auditorium II
2	Javier Gómez-Lagos, Marcela González-Araya, Wladimir Soto Silva and Luis Acosta. Análisis de Métodos de Solución Multi-Objetivo Exactos para la Apoyar la Planificación de Cosecha en Fruticultura Mayor	M3-A2	Auditorium II

3	Nicolas Reyes-Reyes, Marcela Gonzalez-Araya, Wladimir Soto-Silva, Javier Gomez-Lagos and Irlanda Ceballos-Fuentealba. Clasificación de las Etapas de Crecimiento en Lechugas: Un Enfoque Basado en Redes Neuronales Artificiales	M3-A2	Auditorium II
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OR Models and Applications in Transportation III.

Chair: Nicolas Keller.

		Session	Location
1	Carlos López Apablaza and Armin Lürer-Villagra. Resolución del median shortest path problem, considerando explícitamente funciones de utilidad probabilísticas de los usuarios	M3-A3	Auditorium III
2	Nicolas Keller, Renato Maynard and Maichel M. Aguayo. A multi-trip capacitated single-vehicle routing problem arising in a pulp mill	M3-A3	Auditorium III

Dealing with Uncertainty: OR Methods and Applications II.

Chair: Franco Basso.

		Session	Location
1	Giovanni Giuliano, Pablo A. Miranda-González and Francisco J. Tapia-Ubeda. Diseño de cadena de suministro con manejo de inventario y demandas estocásticas, integrando resiliencia ante eventos disruptivos.	M3-A4	Auditorium IV
2	Mauricio Varas, Franco Basso and Raúl Pezoa. Computing robust coalition structures	M3-A4	Auditorium IV
3	Franco Basso, Guillermo Ibarra, Raul Pezoa and Mauricio Varas. Colaboración horizontal en la cadena de suministro del vino: Una aplicación en Chile	M3-A4	Auditorium IV