



***2026 Pan-Pacific Business Research  
Conference (PPBRC)***

May 8, 2026

at

Skyboxes at SMSU  
California State University San Bernardino, California,  
USA

by

Institute of Academic Research

# ***2026 Pan-Pacific Business Research Conference***

May 8, 2026

by  
Institute of Academic Research

## **The conference Chair**

### **Joon Son**

Professor of Information & Data System  
California State University, San Bernardino

## **Area committees**

- **Accounting:** David Senteney\*, John Jin, Vishal Munsif,
- **Finance:** Yu Liu, Liang (Kevin) Guo, Taewon Yang\*,
- **Marketing & Hospitality Management:** Haakon Brown\*, Chanhong Song, Sunghee Paik, Ari Kim
- **Management:** YongSeok Jang\*
- **IDS:** Joon Son\*

\*Area chairs.

## **Conference Schedule**

### **Program Schedule on May 8, 2026 (Skyboxes at SMSU)**

<u>08:30 - 16:00</u>	<b>Registration</b>
<u>08:30 - 09:00</u>	<b>Coffee Break</b>
<u>09:00 - 10:30</u>	<b>Session 1</b>
<u>10:40 - 12:10</u>	<b>Session 2</b>
<u>12:10 - 13:40</u>	<b>Lunch</b>
<u>13:40 - 15:10</u>	<b>Session 3</b>
<u>15:20 - 16:50</u>	<b>Session 4</b>
<u>17:00 - 20:00</u>	<b>Business Strategy Meeting</b>

### **Program Schedule on May 9, 2026**

<u>10:00 - 12:00</u>	<b>Executive committee meeting</b>
----------------------	------------------------------------

## **The Aim and Scope of the Conference**

The PPBRC is a highly interactive business conference that provides the opportunity for participants to share their research in an interdisciplinary setting and to disseminate research findings with others in the academic and business communities. The conference will consider both conceptual and empirical papers in all areas of business, economics and higher education pedagogy, including Accounting, Economics, Finance, Hospitality Management, Marketing, Management (private and public), Operation Management, Information Systems and best practices in higher education teaching:

- New theories, paradigmatic design and applications.
- New regulations and policies.
- Application of Accounting, Economics, Finance, Hospitality Management, Entrepreneurship, Marketing, Management, Operation Management, and Information Systems in industrial or international settings.
- Case studies exploring current issues.
- Pedagogical issues in business and higher education.

The conference considers all topical areas but papers that focus on business issues in pan-pacific countries are particularly encouraged and welcomed. Guideline for Paper Submission and Decision Process Papers must be submitted electronically by sending your manuscript (in Word) to: [info@iacademicresearch.org](mailto:info@iacademicresearch.org). All papers will be reviewed with a double-blind procedure. Review of the papers will start immediately, and the authors will be informed of the acceptance decision by April 20, 2026. Registration At least one author from each paper accepted for presentation at 2026 PPBRC must be registered for the Conference and be prepared to present their research on site for the paper to appear in the proceedings.

**For registration fee and payment details visit:**

<https://iacademicresearch.org/index.php/payment-fee/2026-ppbrc-conference>. There is a \$300 registration fee for the 2026 PPBRC conference that includes both breaks and meals. You may use a credit card or debit card at the payment-fee site provided or issue a check at the conference site.

## **Guideline for Paper Preparation and Style**

Before submission, the paper should not have been published in any other journals (papers in the submission process are acceptable). The paper should be in MS Office Word format. It should be written in double space in no more than 30 pages, one-inch margin on all sides, and 12 font size with times new roman font. The cover page should include the title of the paper and author information—the name(s), affiliation(s), address(es), phone number(s), and email(s) as well as contact author of the paper. On the second page, the paper title should be repeat along with an abstract and key words. The title should appear in the center of the first line. Next provide two blank lines by hitting enter three times after the end of the title. The abstract should be no more than 250 words. Give another blank line and then provide up to six key words. PPJBR generally follows the American Psychological Association (APA) guidelines. References should be presented on a separate page at the end of the paper. Tables and figures and their

numbering should appear on the appropriate page within the text. Please do not use footnotes; instead explain content within the text or use an appendix. The appendix should be located between the end of the text and references.

### **Publication Opportunities in Proceedings**

All the papers accepted for presentation will have abstracts appearing in the conference proceedings. Authors should indicate if they want a full/extended abstract (no more than 1,000 words) to be printed in the conference proceedings rather than the traditional abstract. PPBRI has a copyright for all the extended abstracts that appear in the proceedings.

### **Distinguished Paper Awards and Publication Opportunities in PPJBR**

All fully completed papers submitted and presented at the Conference will be considered for a Distinguished Paper Award on a competitive basis. Distinguished paper winners will receive a certificate of recognition at the conference's closing dinner. Further, the authors of all the distinguished papers will be further invited to revise and resubmit their papers for potential publication in the Pan-Pacific Journal of Business Research (PPJBR), listed on Cabell's Directory and ProQuest. This conference will provide all participants with the opportunity to interact with the members of the PPJBR Editorial Board. This will allow authors the chance to discuss manuscript improvements and future publication opportunities in the PPJBR. For further information, please visit: <https://www.iacademicresearch.org>

Lastly, if you would like to contribute to the conference by becoming reviewers and session chairs, please email us at [info@iacademicresearch.org](mailto:info@iacademicresearch.org) to let us know your interest. We look forward to welcoming you to sunny and beautiful Southern California for what promises to be a great interdisciplinary, academic and social spring event.

# **Paper Presentation Schedule On April 26, 2024**

## **Room: SKY Box 1 at SMSU South**

### **The 1<sup>st</sup> Paper Presentation Session, 9:00 am – 10:30 am**

Session Chair: Dong Man Kim

- 1) Global Liquidity Commonalities: Evidence From Bid-Ask Prices of Cross-Listed Equity Share Time Series

David Senteney\*, California State University San Bernardino  
Taewon Yang, California State University San Bernardino

\*contact author: Dsenteney@csusb.edu

- 2) How Has the NAR Settlement of August 17, 2024, Changed the Real Estate Transactions?

Yu Liu\*, California State University, San Bernardino.

\*contact author: Yu.Liu@csusb.edu

- 3) Unveiling the Power of ESG Factors in UK Pension Funds

Liang Guo\*, California State University, San Bernardino.  
Lin Zhao, Elon University

\*contact author: Lguo@csusb.edu

### **The 2<sup>nd</sup> Paper Presentation Session, 10:40 am – 12:10 pm**

Session Chair: Taewon Yang

- 1) Firm-Level Climate Change Exposure and Goodwill Impairment

Taewon Yang, California State University San Bernardino

SungWook Yoon\*, California State University Northridge

\*Contact author: [sungwook.yoon@csun.edu](mailto:sungwook.yoon@csun.edu)

- 2) Hidden Impairments: How Financial Stress Distorts Goodwill Reporting and What Auditors Can Do About It

Sungsoo Kim, Rutgers, The State University of New Jersey

Taewoo Kim\*, California State University, San Bernardino

Brandon B. Lee, Indiana University Northwest

Daniel G. Paik, University of Richmond

\* Contact author: [taewoo.kim@csusb.edu](mailto:taewoo.kim@csusb.edu)

- 3) Association between National Governance and Tax Evasion

John J. Jin\*, California State University-San Bernardino

Kyung Joo Lee, University of Maryland-Eastern Shore

\*Contact author: [jjin@csusb.edu](mailto:jjin@csusb.edu)

## **The 3<sup>rd</sup> Paper Presentation Session, 1:40 pm – 3:10 pm**

Session Chair: Joon Son

Zoom: <https://csusb.zoom.us/j/89919608898>

- 1) Navigating the Balance Sheet of Artificial Intelligence: Unearthing the Gains and Gaps in Accounting

Vishal Munsif\*, California State University San Bernardino

\*Contact author: [vmunsif@csusb.edu](mailto:vmunsif@csusb.edu)

- 2) AI Application for Accounting Research: Claude—A Terminal to a New Beginning

Hang Pei\*, California State University – San Bernardino

\*Contact author: [hang.pei@csusb.edu](mailto:hang.pei@csusb.edu)

3) Deep Learning: Forecasting Bitcoin Return Direction

Haakon Brown, California State University San Bernardino  
David Senteney, California State University San Bernardino  
Taewon Yang\*, California State University San Bernardino

\*Contact author: taewon@csusb.edu

**The 4<sup>th</sup> Paper Presentation Session, 3:20 pm – 4:50 pm**

Session Chair: Taewon Yang

Zoom: <https://csusb.zoom.us/j/89919608898>

1) An Ontology-Based Approach to Modeling and Auditing Security Policies

Joon Son\*, California State University, San Bernardino  
Nikolay Maslov, RAND

\*Contact author: Json@csusb.edu

## **Room: Sky Box 2 at SMSU (South)**

Session Chair: Chanh Song

### **The 1<sup>st</sup> Paper Presentation Session, 9:00 am – 10:30 am**

- 1) Understanding Momsumer Engagement in Intercollegiate Athletics: Motivations, Barriers, and Family Dynamics

Ari Kim\*, California State University, San Bernardino

Contact author: [ari.kim@csusb.edu](mailto:ari.kim@csusb.edu)

- 2) Dark Side of Social Commerce: Should Social Media Companies Be Held Liable?

Min-Chung Han, Kean University

Sung-Hee Paik\*, California State University San Bernardino

Kyungwon Lee, Kean University

Chanh Song, California State University San Bernardino

\*Contact author: [SungHee.Paik@csusb.edu](mailto:SungHee.Paik@csusb.edu)

- 3) Is Fundraising Expense Underrated? Evidence on Efficiency Signals and Growth in Nonprofit Organizations

Soyun Mary Im, California State Polytechnic University, Pomona

Anthony H. Kim\*, California State Polytechnic University, Pomona

\*Contact author: [hongbumkim@cpp.edu](mailto:hongbumkim@cpp.edu)

- 4) Data Posture, Audience Specificity, and Competitive Advantage in Artificial Intelligence Startups

Yongseok Jang\*, California State University, San Bernardino

\*Contact author: [Yongseok.Jang@csusb.edu](mailto:Yongseok.Jang@csusb.edu)

## ***ABSTRACTS***

### **Global Liquidity Commonalities: Evidence From Bid-Ask Prices Of Cross-Listed Equity Share Time Series**

David L. Senteney, California State University San Bernardino

Taewon Yang, California State University San Bernardino

**Abstract** This study investigates international liquidity spillovers focusing on how liquidity cost shocks propagate within and across geographic regions world-wide. We employ bid-ask spread based measures of equity share liquidity cost to estimate established vector autoregression (VAR) models and spillover index analyses to quantify the magnitude and direction of cross border liquidity cost shock information transfers. Our findings reveal significant liquidity cost spillover effects wherein larger more integrated economies tend to be dominant liquidity cost shock information outflow transmitters, while smaller more isolated markets tend to be net receivers of liquidity cost shock information inflows making them more vulnerable to external liquidity conditions. By highlighting the interconnected nature of global liquidity costs, this study underscores the need for coordinated policy responses in order to mitigate systemic risk arising from liquidity cost shocks in increasingly integrated global economy.

## **How Has the NAR Settlement of August 17, 2024, Changed the Real Estate Transactions?**

Yu Liu\*, California State University, San Bernardino, USA.

This paper examines how the National Association of Realtors (NAR) class action settlement, effective August 17, 2024, has fundamentally altered residential real estate transactions in the United States. Leveraging multiple empirical approaches, including difference-in-differences analysis of commission trends, propensity score matching of pre- and post-settlement transactions, and survey data from real estate professionals across major markets, I document the settlement's impacts on commission structures, buyer-broker relationships, and transaction dynamics. The analysis reveals three key findings. First, contrary to initial expectations of commission collapse, average buyer agent commissions declined modestly from pre-settlement to immediately post-settlement, then rebounded back, essentially returning to pre-announcement levels. Second, the requirement for written buyer-broker agreements before touring properties has fundamentally altered the buyer-agent relationship, with 100% of buyers now signing formal agreements, though concerns persist regarding consumer comprehension of complex contract terms. Third, the elimination of commission offers from MLS platforms has not eliminated cooperative compensation; rather, offers of compensation have migrated to off-MLS channels, with the vast majority of sellers continuing to offer buyer agent commissions, particularly in buyer's markets. Using a calibrated dynamic structural search model, I also examine the general equilibrium effects of reduced commissions, finding that lower transaction costs are likely capitalized into higher home prices, with benefits accrued primarily to current homeowners rather than prospective first-time buyers. The paper concludes by examining policy implications for consumer protection, market efficiency, and the future structure of real estate brokerage.

## **Unveiling the Power of ESG Factors in UK Pension Funds**

Liang Guo\*, California State University, San Bernardino

Lin Zhao, Elon University

\*Contact author: Lguo@csusb.edu

Examining the effects of ESG risk exposure on the dynamics of the UK pension funds, we present evidence suggesting that investors in the UK pension funds market consider specific ESG risk exposure of funds as a material nonfinancial risk in their investment decision-making process. We find that funds subject to a higher level of social and governance risk exposure are associated with higher alphas, while elevated environmental risk reduces funds' abnormal returns. Furthermore, a fund's exposure to social risk is reversely related to money flows to the fund. The findings indicate the coexistence of the "neglected firm effect" and the "doing well while doing good" phenomenon in the UK pension funds market.

## **Understanding Momsumer Engagement in Intercollegiate Athletics: Motivations, Barriers, and Family Dynamics**

Ari Kim\*, California State University, San Bernardino

Contact author: [ari.kim@csusb.edu](mailto:ari.kim@csusb.edu)

This study explores the motivations and barriers influencing momsumers' consumption of intercollegiate athletics, with a particular focus on local Football Championship Subdivision (FCS) programs. As attendance declines and smaller programs face resource constraints, understanding key decision-makers within households, especially mothers, becomes critical for community engagement and revenue generation. Grounded in the push-pull motivation framework, this study examines both internal (push) factors such as social interaction, family bonding, and sport identification, and external (pull) factors including game attractiveness, marketing communications, and competing entertainment options.

Using an exploratory sequential mixed-methods design, qualitative data were first collected through semi-structured interviews with ten momsumers recruited from local communities. Thematic analysis identified a complex interplay of internal and external facilitators and constraints shaping attendance decisions. These findings informed a broader understanding of how motivations and contextual factors influence momsumer behavior in intercollegiate sports consumption.

Theoretically, this study extends push-pull frameworks by integrating both positive and negative consumption factors and applying them to a specific and influential consumer segment. Practically, the findings provide actionable insights for athletic departments, particularly those with limited resources, to develop targeted, family-oriented marketing strategies and enhance game-day experiences. By focusing on momsumers as key household decision-makers, this study contributes to more effective community engagement and sustainable attendance strategies in intercollegiate athletics.

## **Dark Side of Social Commerce: Should Social Media Companies Be Held Liable?**

Min-Chung Han, Sung-Hee Paik\*, Kyungwon Lee, Chanho Song

Contact author: SungHee.Paik@csusb.edu

Social media has become a dominant channel for online shopping, yet it also serves as a fertile ground for scams and deceptive advertising. In 2021 alone, U.S. consumers lost over \$770 million to social-media-based fraud, with Facebook and Instagram accounting for the vast majority of incidents. These scams, often involving counterfeit or non-existent products, have raised public concerns about the accountability of social media platforms that profit from the very advertisements enabling deception. Despite consumer lawsuits and government investigations, platforms have largely denied responsibility, asserting that they merely host, rather than create, advertising content. This study examines how consumers attribute blame for social-commerce scams and explores whether platforms are held responsible for enabling such fraudulent activities. Guided by attribution theory, we investigate how perceived platform responsibility influences consumers' trust recovery and avoidance intentions toward the platform. Specifically, this study hypothesizes that when fraudulent ads appear to involve well-known brands, consumers may perceive higher platform controllability and thus assign greater responsibility to the platform for allowing such scams. Conversely, when fraudulent ads feature lesser-known brands, consumers may view the deception as less foreseeable and attribute more blame to the merchant. Testing this relationship contributes to understanding how brand familiarity shapes consumer attributions of responsibility in deceptive digital marketplaces. In addition, this research extends attribution theory by conceptualizing social media platforms as loci of consumer blame within social commerce. The findings will enrich theoretical understanding of how perceived platform responsibility and recovery policies influence post-failure trust dynamics in online marketplaces

## **Is Fundraising Expense Underrated? Evidence on Efficiency Signals and Growth in Nonprofit Organizations**

Soyun Mary Im, California State Polytechnic University, Pomona  
Anthony H. Kim\*, California State Polytechnic University, Pomona

\*Contact author: hongbumkim@cpp.edu

This study examines whether commonly used nonprofit financial ratios—specifically the program expense ratio and fundraising expenditures—accurately predict the future financial performance of not-for-profit (NFP) organizations. While prior research emphasizes these ratios as indicators of efficiency that influence donor decision making, their role in shaping long-term organizational growth remains unclear. Drawing on signaling theory, relationship marketing, and the resource-based view, this study conceptualizes fundraising expenditures as strategic investments in donor acquisition, engagement, and organizational capability development rather than as administrative overhead.

Using a large longitudinal dataset from the Internal Revenue Service (IRS) Statistics of Income (SOI) files spanning 1992–2013, the analysis includes 221,657 organization-year observations across multiple nonprofit sectors. The empirical results reveal that fundraising expenditures are positively associated with future financial performance, while the program expense ratio is negatively associated with subsequent profitability. Additionally, greater allocation of executive compensation toward fundraising activities is linked to improved future outcomes, highlighting the importance of managerial attention in resource development.

These findings challenge the conventional assumption that higher program expense ratios necessarily reflect superior nonprofit performance. Instead, they suggest that excessive emphasis on financial efficiency signals may discourage investments critical for long-term sustainability. By integrating accounting and marketing perspectives, this study contributes to the nonprofit literature by demonstrating that fundraising activities function as strategic growth investments. The results have important implications for nonprofit managers, donors, and evaluation agencies, emphasizing the need to balance efficiency metrics with broader considerations of organizational capacity and future growth.

## **Data Posture, Audience Specificity, and Competitive Advantage in Artificial Intelligence Startups**

Yongseok Jang\*, California State University, San Bernardino

\*contact author: [Yongseok.Jang@csusb.edu](mailto:Yongseok.Jang@csusb.edu)

Data requirements have emerged as a critical source of competitive advantage and a significant barrier to entry in artificial intelligence (AI) markets. However, existing research has only begun to examine how AI data shape competitive advantage. Addressing this gap, this study investigates how AI data influence strategic positioning in AI ventures by developing an integrative strategic framework of AI service businesses. Drawing on a multiple-case study approach, we conceptualize AI data as a key strategic resource for artificial intelligence startups (AISs) and link data characteristics to competitive outcomes. Our findings show that the type of AI data plays a central role in shaping firms' strategic positions, resulting in four distinct strategic configurations. While data type affects both value creation and defensibility, its strategic impact is contingent on the specificity of the audience for which the data are employed.

## **Firm-Level Climate Change Exposure and Goodwill Impairment**

Taewon Yang, California State University San Bernardino

SungWook Yoon\*, California State University Northridge

\*Contact author: [sungwook.yoon@csun.edu](mailto:sungwook.yoon@csun.edu)

This study will examine the effect of firm-level climate change exposure on goodwill impairment. Climate change has become a critical source of firm level risk that impacts firms' investment decisions and financial reporting. Due to climate change, firms increasingly face physical risks (e.g, extreme weather events), as well as transition risks (e.g, regulatory changes and/or carbon pricing). Those climate risks may have material effects on firms' expected cash flows in the future.

Due to the increasing number of mergers and acquisitions (M&A), goodwill is considered one of the most significant intangible assets on firms' balance sheets. Unlike other intangible assets, goodwill is not amortized, but instead tested annually for impairment, making it highly sensitive to managerial expectations about future performance and leaving more room for subjective judgment to influence goodwill impairment.

Despite the growing importance of climate change exposure risk, there is no prior study that explores the impact of climate change exposure on goodwill impairment. Existing studies primarily focus on the determinants of goodwill impairment such as firm performance, governance, and information environment, whereas recent climate related research concentrates on tangible asset impairments rather than intangible assets.

This paper will bridge these two strands of literature by examining whether and how firm-level climate exposure influences the likelihood and magnitude of goodwill impairment. We anticipate that climate exposure may affect goodwill impairment through two primary channels: (1) economic deterioration via reduced expected cash flows, and (2) increased uncertainty leading to conservative accounting recognition.

With a dataset of the U.S. public firms, we will examine whether firms with higher climate exposure are more likely to recognize goodwill impairment and report larger impairment losses. Our findings are expected to contribute to the literature by introducing climate risk as another determinant of goodwill impairment and by extending the understanding of how environmental risks are reflected in financial reporting.

## **Hidden Impairments: How Financial Stress Distorts Goodwill Reporting and What Auditors Can Do About It**

Sungsoo Kim, Rutgers, The State University of New Jersey

Taewoo Kim\*, California State University, San Bernardino

Brandon B. Lee, Indiana University Northwest

Daniel G. Paik, University of Richmond

\* Contact author: [taewoo.kim@csusb.edu](mailto:taewoo.kim@csusb.edu)

This study investigates the relationship between a firm's financial stress and its goodwill impairment reporting. The results reveal that firms experiencing greater financial stress tend to report lower levels of goodwill impairment losses. Furthermore, for companies exhibiting higher information asymmetry, the negative relationship between financial stress and goodwill impairment becomes more pronounced, implying that the link between financial stress and impairment recognition strengthens as information asymmetry increases. Conversely, higher audit quality weakens this negative relationship, attenuating the suppressive effect of financial stress on goodwill impairment recognition.

## **Association between National Governance and Tax Evasion**

John J. Jin\*, California State University-San Bernardino

Kyung Joo Lee, University of Maryland-Eastern Shore

\*Contact author:jjin@csusb.edu

The purpose of this study is to examine whether tax behavior is systematically related to national governance at the country level. We hypothesized that national governance has a positive association with its tax morale. Specifically, the countries with higher governance levels are predicted to have lower tax evasion than those with lower governance levels. This hypothesis was tested using 94 countries for the year 2023. We used the Worldwide Governance Indicators (WGI) published by the World Bank as the measures of national governance, and the size of shadow economy relative to national GDP as the measure of tax evasion. Our empirical results show that countries with higher governance exhibit smaller tax evasion, supporting our hypothesis. This result holds even after controlling other factors such as national culture, legal system and economy size that may affect tax behavior. We also examine whether OECD membership affects the association between national governance and tax evasion. While OECD countries have higher governance levels and lower tax evasion than the non-OECD countries, the negative association between national governance and tax evasion holds regardless of OECD membership. However, there are some differences in the association between tax evasion and other factors (culture and legal system). For example, legal system has a significant association with tax evasion only for non-OECD countries.

## **Navigating the Balance Sheet of Artificial Intelligence: Unearthing the Gains and Gaps in Accounting**

Vishal Munsif\*, California State University San Bernardino

\*Contact author:vmunsif@csusb.edu

This paper delves into the expansive terrain of Artificial Intelligence (AI) in the domain of accounting, meticulously examining its multifaceted impacts, advantages, and drawbacks. As AI continues to undergo rapid evolution and integration across diverse industries, its role within the accounting sector warrants a critical evaluation. The study offers a comprehensive elucidation of AI, delineating its significance in the realm of accounting, and conducts a thorough exploration of the benefits and limitations entwined with its application. By scrutinizing the nuanced interplay between AI and accounting, this research aims to provide a detailed understanding of the transformative effects and challenges brought about by AI technologies in financial practices. The analysis presented in this paper not only underscores the potentials that AI affords to accounting processes but also elucidates the intricacies and potential pitfalls that necessitate vigilant consideration for its effective and responsible utilization in the accounting domain.

## **AI Application for Accounting Research: Claude—A Terminal to a New Beginning**

Hang Pei\*, California State University San Bernardino

\*Contact author: [hang.pei@csusb.edu](mailto:hang.pei@csusb.edu)

ChatGPT, Gemini, Copilot, and now Claude. No one knows when or how the AI war is going to end. But one thing seems certain enough, that at this moment, we have entered a new stage. From the early days of chatbots on web pages, the war has spread to our local devices. A relatively new way to interact with AI seems to have emerged. In February 2025, Claude Code was announced and has since caught attention. It is a new breed. One you can talk to from a lightweight web browser such as Chrome or Safari, sure. But also, it lives on your laptops or desktops. There are dedicated apps for PC and Mac alike. Moreover, we can now access it from the terminal, a.k.a. the command line for us old-timers. And it is precisely the latter method (yes, terminal, or command line) that, in my humble opinion, unlocks the AI's true power. What does this mean for accounting researchers? In this paper, I am going to explore the feasibility and efficiency of Claude Code adapted to the mundane tasks of research. The ideas and analysis part of research? Those are still uniquely mine. However, can Claude help me modernize some of the less glamorous parts of a researcher's job: the data collecting, cleaning, debugging, and debugging again part? In other words, can it free me from those left joins and right joins that we all have to navigate through on our way to true knowledge. I think the answer is a definite yes and here is why.

## Deep Learning: Forecasting Bitcoin Return Direction

Haakon Brown, California State University San Bernardino  
David Senteney, California State University San Bernardino  
Taewon Yang\*, California State University San Bernardino

\*Contact author: [taewon@csusb.edu](mailto:taewon@csusb.edu)

We explore the directional predictability of several deep learning models such as RNN, LSTM, RGU, Transformer, and XGBoost, using Bitcoin returns from Jan 2018 to March 2026. We find that RNN and related deep learning models (LSTM, GRU, and Transformers) tend to suggest more long positions than short positions. It may result from frequent positive Bitcoin returns, rather than negative returns. Interestingly, XGBoost is stronger in predicting downturns than upturns. These findings suggest that when an economic regime changes or switches, a different model may be better to use for directional prediction.

## **An Ontology-Based Approach to Modeling and Auditing Security Policies**

Joon Son\*, California State University, San Bernardino  
Nikolay Maslov, RAND

\*Contact author: [Jsoo@csusb.edu](mailto:Jsoo@csusb.edu)

In this paper, we show how an ontology-based model can support the design and analysis of security access control policies. The proposed framework enables the construction of consistent, formally grounded models against which a system can be systematically audited, providing a rigorous setting in which security weaknesses can be both detected and quantified. By grounding the analysis in an ontology, the approach offers a transparent and reusable foundation that can be adapted to a wide range of access control scenarios.

The approach proceeds in three phases. In the first phase, we build an ontological model of the system under audit, formally defining the relevant classes, object properties, and the relationships that govern how entities interact within the system. In the second phase, we introduce a set of logical rules that, together with the ontology, characterize what constitutes a security attack or weakness, allowing such conditions to be identified through formal inference rather than ad hoc inspection. In the final phase, we present a formal approach for measuring the severity of the identified weaknesses, enabling meaningful comparison between alternative configurations and supporting informed decisions during policy design and review.