OBJETIVOS DE DESARROLLO SOSTENIBLE

Concurso de Proyectos de Desarrollo Turístico de la Ciudad al Campo- (3 Edición)

La Facultad de Administración en Hotelería y Turismo de la UPC y StartUPC, en alianza con el Instituto Iberoamericano de Turismo Rural (IBEROATUR), convocaron a estudiantes de las carreras de turismo, hotelería, gastronomía o afines de universidades públicas y privadas a la 3ra Edición del Concurso de Proyectos de Desarrollo Turístico de la Ciudad al Campo, que se realizó en modalidad virtual el 22 y el 23 de noviembre.

Se seleccionaron proyectos que tuvieron como característica principal el proponer nuevas alternativas de empleo e ingresos que permitan diversificar las actividades agrícolas y agroindustriales de los pobladores rurales, demostrando a través de los proyectos beneficios para los propietarios de los emprendimientos y para los pobladores rurales dedicados al agro.

El objetivo de esta competencia fue fomentar proyectos que impulsen el flujo turístico hacia áreas con un gran potencial y en desarrollo, con un enfoque especial en el turismo rural como: el agroturismo, enoturismo, gastro turismo y otras categorías relacionadas.

Mujer Esperanza

En junio de 2023, la Dirección de Vida Universitaria organizó el evento "Mujer Esperanza", que se realizó en la sala Alcedo del Teatro Segura, donde participó la cantautora peruana Luz María Carriquiry.

El objetivo del evento fue dar visibilidad a las cantautoras. Asimismo, se ofreció oportunidades de información, reflexión, conocimiento, arte, cultura, deporte y entretenimiento a los estudiantes e integrantes de la comunidad universitaria.
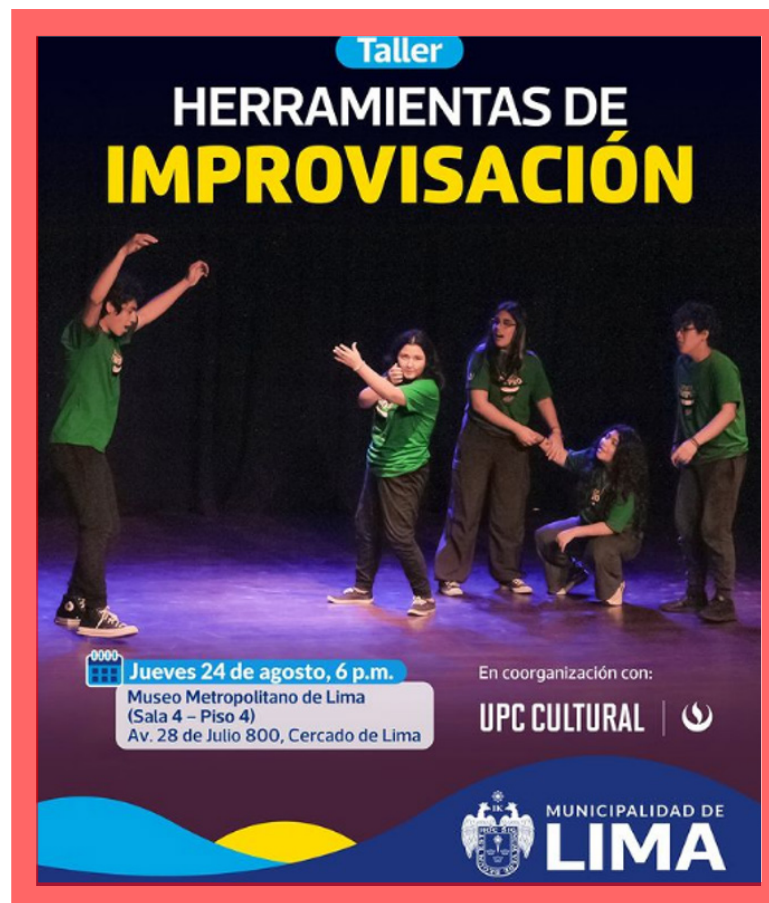
Clase maestra con el Elenco de Impro UPC

En agosto de 2023, la Dirección de Vida Universitaria organizó el evento "Clase maestra con el Elenco de Impro UPC", que se realizó en el Museo Metropolitano de Lima. El objetivo fue difundir el arte de la improvisación teatral.

Fue una clase maestra donde se practicaron juegos de improvisación teatral y se brindó a los integrantes de los Elencos UPC la posibilidad de mostrar su talento artístico que fue parte de su formación integral. Los espectadores recibieron un espectáculo que promovió el arte y la cultura.

Taller
HERRAMIENTAS DE IMPROVISACIÓN

Jueves 24 de agosto, 6 p.m.
Museo Metropolitano de Lima
(Sala 4 – Piso 4)
Av. 28 de Julio 800, Cercado de Lima

En coorganización con:
UPC CULTURAL

MUNICIPALIDAD DE LIMA

Conversatorio Lima Criminal

En diciembre de 2023, la Dirección de Vida Universitaria de la UPC organizó el Conversatorio Lima Criminal, que se realizó en el auditorio Julio Ramón Ribeyro de la Feria del Libro Ricardo Palma. El objetivo del evento fue ofrecer una programación de calidad y variada.

Fue un conversatorio sobre el podcast Lima Criminal. Se brindó contenidos y experiencias relacionadas con el arte, la cultura y el patrimonio, en un formato accesible y atractivo.

Clase maestra con el Elenco de Street Dance UPC

En setiembre de 2023, la Dirección de Vida Universitaria organizó el evento "Clase maestra con el Elenco de Street Dance UPC", que se realizó en el Teatro Segura. El objetivo fue conocer más sobre las danzas urbanas y sus géneros.

Se enseñaron pasos básicos, se dio el contexto de las danzas urbanas y se brindó a los integrantes de los Elencos UPC la posibilidad de mostrar su talento artístico que fue parte de su formación integral. Los espectadores recibieron un espectáculo que promovió el arte y la cultura.

Conversatorio: Retos de la gestión cultural frente a los hábitos de consumo postpandemia

En febrero de 2023, la Dirección de Vida Universitaria organizó el "Conversatorio: Retos de la gestión cultural frente a los hábitos de consumo postpandemia", que se realizó en el auditorio Luis Bustamante de UPC San Isidro y vía Facebook. Participaron como expositores: Marco Mühletaler, Grazia Rojas, Italo Ilizarbe y Erika Lastra. Moderó Carina Moreno.

El objetivo del evento fue dar a conocer al público en general una radiografía del ámbito de la gestión cultural actual y los hábitos de consumo de los limeños. Además, se brindó contenidos y experiencias relacionadas con el arte, la cultura y el patrimonio en un formato accesible y atractivo.

FM Festival

En noviembre de 2023, la Carrera de Comunicación Audiovisual y Medios Interactivos de la UPC participó en el "FM FESTIVAL", feria familiar musical en la que se buscó recordar y compartir los mejores hits de las últimas 4 décadas.

El público objetivo fueron hombres y mujeres de 30 a 45 años, padres de familia que trabajan y buscan un espacio recreativo para interactuar con sus seres queridos y que se esfuerzan por encontrar un equilibrio entre sus compromisos laborales y familiares. Además, comparten el gusto por la música, lo que fortaleció aún más sus lazos. El objetivo del evento fue impulsar la búsqueda de nuevas formas de promocionar y celebrar la creatividad.

Noche MALI

En julio de 2023, la Dirección de Vida Universitaria de la UPC participó en el evento "Noche MALI", que fue llevado a cabo en el Museo de Arte de Lima. El objetivo fue fomentar las visitas al museo y la participación en sus actividades.

En esta oportunidad, el Elenco de Música Peruana de la UPC participó en el cierre de la "Noche MALI" del mes de julio. El elenco compartió lo mejor de su repertorio e hizo disfrutar a los asistentes el ritmo de la música peruana.

Esta actividad brindó a los integrantes de los Elencos UPC la posibilidad de mostrar su talento artístico que fue parte de su formación integral. Los espectadores recibieron un espectáculo que promueve el arte y la cultura.
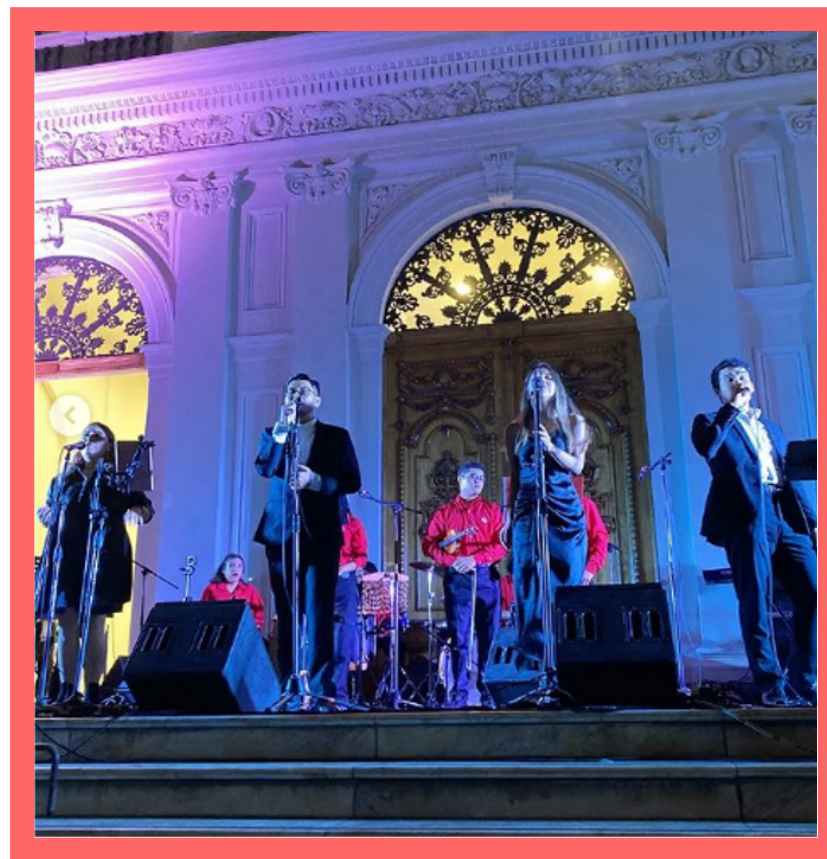
Raíces Libres

En octubre de 2023, la Dirección de Vida Universitaria de la UPC participó en el evento "Raíces Libres", que fue llevado a cabo en el Teatro de la Alianza Francesa con el objetivo de ofrecer actividades culturales de calidad al público de UPC Cultural.

Raíces Libres nació como una manera de compartir y una forma de ver el plurimestizaje peruano a través de las experiencias de vida artísticas de Antonio Vilchez y Ricardo Gallardo. Se brindó oportunidades de acercamiento a manifestaciones artísticas, culturales y de puesta en valor del patrimonio nacional.

Musicotopia

Alumnos de la carrera de Comunicación Audiovisual y Medios Interactivos de la UPC participaron en el festival de música Musicotopia, evento que fue dirigido a jóvenes entre 18 y 36 años. El objetivo fue buscar un espacio ameno en donde las bandas emergentes de música local se dieran a conocer. Participaron ocho bandas de distintos géneros.

Además, en alianza con el restaurante GastroSurco, se invitaron a emprendedoras universitarias como feriantes.

Lima Art Fest

En noviembre de 2023, la carrera de Comunicación Audiovisual y Medios Interactivos de la UPC participó en la organización del Lima Art Fest, evento cultural que brindó un espacio para difundir el talento de los artistas musicales de los géneros del K-pop, Pop, Punk y Rock Alternativo. Además, se dio la oportunidad a los emprendedores del rubro de la moda, joyería, y maquillaje para que comercialicen sus emprendimientos.

El objetivo del evento fue mejorar el acceso a espacios para expresiones culturales.

Nuevos medios para la gestión de iniciativas culturales Primer taller del programa Conecta gracias a la alianza con UPC Cultural

En el 2023 se tuvo el agrado de contar con cuatro talleres dirigidos a agentes culturales gracias a la alianza que hemos realizado con el programa Conecta del Mincul.

El primer taller se llamó "Nuevos medios para la gestión de iniciativas culturales" y fue dictado por el profesor Juan Carlos Lujan. Este evento se realizó el 17, 19 y 21 de abril del 2023.

Factors associated with frequent marijuana consumption in young people before admission to juvenile detention centers in Peru

Authors: Al-Kassab-córdova, A.; Cornejo-Venegas, G., Gacharna-Madrigal, N., Baquedano-Rojas, C.; de la Borda-Prazak, G.; Mejia, C.R.

Abstract: Marijuana is the most widely used illicit drug in the world, especially among young people. This study is relevant to policy makers because it expands the knowledge regarding drug use in vulnerable youth, al-lowing health authorities to reduce marijuana consumption via educa-tional, family, and governmental strategies and policies. The objective of this study was to determine the prevalence of frequent marijuana consumption and its associated factors in young people before admission to juvenile detention centers in Peru. The data was taken from the 2016 National Population Census of the Youth Diagnostic and Rehabilitation Centers in Peru. The final sample was made up of 1,848 people with ages between 14 and 22 years old, with a median age of 17 (95.6% males). The variable frequent marijuana consumption was de-fined as the use of marijuana at least once a week, prior to entering the center. The main factors associated with frequent marijuana use were male sex, running away from home before the age of 15, physical abuse during childhood, having a family member who consumed alcohol or drugs frequently, and the presence of criminal gangs in the housing area. Additionally, it was found that living with parents up to a specific critical age decreases the probability of frequent

Factors associated with frequent marijuana consumption in young people before admission to juvenile detention centers in Peru

use of marijuana in young people. These results could aid the development of strategies and public policies that help prevent the consumption of marijuana and other drugs from an early age.

Promoting early childhood development through built environment transformations: lessons from the safe route project in Lima, Peru

Authors: Cepero-Saravia, J.; Dreifuss-Serrano, C.; Ortigoza, A.

Abstract: Early childhood development is crucial for children's growth and long-term outcomes. In Peru, the government has made investments in education and health, aiming to support child development programs. However, more work is needed in other areas to ensure all children can thrive. This paper explores the potential of interventions in the built environment as a relatively unexplored area that could benefit child's development. We present the implementation of the 'Safe Route to the "Mercedarias" daycare' project as a successful experience for promoting child-friendly cities. The project involved collaboration among mid-level officers and frontline workers within a large municipality's organizational structure. The strategies we used allowed us to build a working group willing to collaborate on further projects. The process was successful without requiring additional expenses beyond regular costs. Officers that had never been involved before felt engaged with the initiative while testimonies from caregivers indicated positive outputs. The case study could serve as an example to other cities of a successful model for promoting early childhood development in cities by engaging stakeholders at all levels in the identification of challenges faced by young children and caregivers while underscoring the importance of investing in urban environment interventions for improving children's growth.

Influence of Adaptive Traffic Lights for Delay and Conflict Reduction Applying the SSAM Model at an Urban Intersection

Authors: Breña, A.; Vasquez, J.; Silvera, M.; Campos, F.

Abstract: Undoubtedly, conflicts on intersection roads leading to accidents are very often observed. This is due to the ineffectiveness of fixed-cycle traffic lights that do not adapt to changing urban traffic situations. Based on this, the present research evaluated as a case study an intersection located at Habich Avenue with Tupac Amaru Avenue in Lima, Peru. The article also looks for alternative solutions based on the microscopic representation of the intersection using microsimulation programs such as VISSIM and SSAM. In addition, a codification of traffic light cycles was implemented to allow a continuous flow to the Bus Rapid Transit (BRT) system, indirectly reducing the number of conflict points in urban transport. Moreover, the relationship between the reduction of delays and conflicts was identified. The results indicate that a direct relationship between the evaluation parameters was found from the improvement in the traffic light phases. Delays on the east access decreased by 42% and on the west access by 31%. What is more, 12679 rear-end conflicts and 1727 lane change conflicts were reduced.

Keywords: Conflicts, Delay by control, Adaptive traffic lights

Prevalence of Toxocara eggs in Latin American parks: a systematic review and meta-analysis

Authors: Bonilla-Aldana, D.K.; Morales-Garcia, L.V.; Ulloque Badaracco, J.R.; Mosquera-Rojas, M.D.; Alarcón-Braga, E.A.; Hernandez-Bustamante, E.A.; Al-Kassab-córdova, A.; Benites-Zapata, V.A.; Rodriguez-Morales, A.J.; Delgado, O.

Abstract: Introduction: Toxocariasis is an infection caused in canines, felines, humans, and other vertebrates by species of the genus Toxocara, such as T. canis and T. cati. The embryonated eggs of these parasites are the main form of acquisition of the infection both for definitive hosts, such as the dog and the cat, respectively and for paratenic hosts, such as humans and other vertebrates. Toxocariasis infection in humans causes visceral larva migrans syndrome. When deposited on park soils, environmental contamination becomes a risk for environmental, human, and animal health.
Objective: To systemically estimate the prevalence of Toxocara spp. eggs in park soils in Latin America.
Methods: A systematic review and meta-analysis were performed to evaluate the prevalence of Toxocara eggs in park soils in Latin America, defined by copro-parasitological, molecular and immunological techniques. We searched PubMed, Scopus, Web of Sciences, Embase, LILACS and SciELO for studies published from 1900 through 28 January 2023. A meta-analysis was performed using a random-effects model to calculate the pooled prevalence and 95% confidence intervals (95% CI). Heterogeneity was measured through I2 statistics.
Results: Forty-nine studies (2,508 parks and 12,833 samples) were included, of whom 44 had a low risk of bias. The poo-

Prevalence of Toxocara eggs in Latin American parks: a systematic review and meta-analysis

led prevalence of Toxocara eggs in parks in Latin America was 50.0% (95% CI: 40.0%-60.0%). Argentina had the highest prevalence of Toxocara eggs in parks (100%), followed by Brazil (66%) and Venezuela (63%). The pooled prevalence of Toxocara eggs in soil samples was 20.0% (95% CI: 14.0%-26.0%); in faecal samples, it was 13.0% (95% CI: 6.0%-23.0%). Conclusion: The presence of Toxocara canis eggs in public parks in Latin America is a zoonotic and public health threat for the people who go to these places, especially if children play on the ground with dirt or contaminated objects; since many pet owners and general public are not adequately informed about the mode of transmission of this parasite.

Keywords: Latin America; Toxocara; meta-analysis; park; prevalence; systematic review.

Analysis of the influence of the use of the right lane of a stretch of road as a multiple stop on vehicle delays and capacity of adjacent lanes

Authors: Cesar Soria, Jhon Calcina, Manuel Silvera, Fernando Campos

Abstract: Vehicle congestion in a city affects users of public and private transport because it generates loss of time and money. However, this problem becomes more complex when there is no formal bus stop system and there are no defined stop zones for various bus lines. For this reason, this article aims to analyze vehicle delays and the capacity of all lanes in a section of an avenue in the center of Lima. Drone recordings were made to represent in a microsimulation model a section with multiple bus stops that generate traffic congestion. After calibrating and validating the model, 2 scenarios were built. The first scenario does not have bus stops along the section, and in the second scenario, bus stops are ordered and established with optimized distances. The results showed that the presence of multiple stops in the first lane generates an increase in vehicle delays of 114 seconds. In addition, the capacity in the section is 13% less than in a scenario without stops. On the other hand, the optimization of bus stops generates a decrease in vehicular delays of 58 seconds and increases the vehicular capacity in the section by 4.41%.

Evaluation of the Influence of Atypical Vehicles on Vehicle Delays at a Signalized Intersection

Authors: Brenda Capia; Manuel Silvera; Fernando Campos

Abstract: Cities in developing countries tend to have a high prevalence of atypical vehicles, therefore driving behavior characteristics and demand at intersections may vary. For this reason, the effects of rickshaw incidence on factors such as delays, queue length, and vehicular conflicts are analyzed. This is because rickshaws, being smaller in size and capacity compared to other types of transportation, can have a significant impact on traffic flow and road operations. Through the use of modeling and microsimulation techniques in Vissim 9.0, it is possible to identify the key parameters that contribute to these factors and quantify the specific impact of motorcycle taxis compared to other vehicles. Data collected and processed in the software revealed the influence of rickshaws on average travel times at an intersection, resulting in percentages of 32% for delays, 41% for vehicle conflicts, and 26% for queue lengths.

Analysis of the use of user time based on access to bus boarding information at a BRT station

Authors: Carlos Sapacayo; Enrique Respicio; Manuel Silvera

Abstract: In many cities around the world, public transportation users must go to stops in advance due to the uncertainty of the bus boarding time. This causes them to stop investing their time in activities such as working, studying or leisure time. This research presents the analysis of the time it takes the average user to reach the station from their point of origin, the waiting times in electronic card recharge queues, the time it takes to reach the bus modules and the waiting time in boarding queues spent by users of a BRT station in Lima. Then, they are compared with an alternative to reduce waiting times based on access to precise information on the time of boarding. To do this, data from a survey carried out within the chosen station on the times of each phase were analyzed. Then, a comparison is made between the conventional situation and a scenario in which users know when they should go to the boarding modules to avoid wasting time. The results show that the proposed scenario reduces the time spent by users inside the BRT station from 22.57 minutes to 13.30 minutes compared to the current situation, which represents a reduction of 41.18%. Likewise, the waiting time in the proposed scenario for the boarding modules is 43% lower than the average time of users in the conventional situation. The current reduced times are significant, and, according to the survey results, these can be used in other activities such as leisure and work.

Remote sensing evaluation of the expansion of the Palcacocha Lake and Glacial Retreat in the Cordillera Blanca - Peru

Authors: Zavala, Rosa Maria Otiniano; Gomez, Angie Lucero Mulatillo; Mercado, Nicol Dayana Blas; Chuquillanqui, Anthonny Bryan; Aguilar; Malca, Ulises Francisco Giraldo.

Abstract: Currently, one of the worrying problems in vehicular traffic is the large number of cars making left turns at intersections. This phenomenon has generated various challenges in terms of road safety, traffic fluidity and transportation efficiency. To face this situation, today, alternative and innovative solutions are being proposed through the design of unconventional intersections. One of these is the displaced left turn (DLT) intersection. However, given that intersections of this type are few in Peru, it is necessary to evaluate the operational performance of this type of intersections. Therefore, this study evaluates the operability of DLTs using a scenario comparison study based on selected performance measures. For this, the case of a conventional intersection in the city of Lima is evaluated, in which the DLT was implemented in two accesses that have a greater flow of vehicles. The evaluation indicates that the DLT intersection proposed in this study has a high potential to reduce vehicular delays but may increase the number of conflicts. The study concludes by stating that, although the design with DLT reduces vehicular delays by 31.25%, at the same time it has negative impacts by increasing the number of vehicular conflicts by 73.57%. As a recommendation, it is suggested that appropriate safety measures be adopted, which must be designed and put into practice in order to increase the operability of the intersection.

Cine Tauro: a lustful island in the chaos of Lima. Subjects and heritage values around the modern object

Authors: Dordan Barboza, K.| Kohama Aréstegui, C.| Suarez Robles, G.| Yalán Reyes, I.

Abstract: The objective of this article is to present the development of the investigation of the case: "Cine Tauro: a lustful island in the chaos of Lima. Subjects and heritage values around the modern object".
The main objective of this research is to understand the reasons why the Taurus cinema, a representative project of the modernity of Peruvian architecture of the early 1960s, remained isolated, decadent and dying in the officially called monumental urban environment of the 20th century of the Fence of Lima.

Analysis of the influence of traffic signalization using a stochastic algorithm in the reduction of queues and delays at intersections with high traffic flow

Authors: Jhonan Urbano; Fernanda Bassini; Manuel Silvera; Fernando Campos

Abstract: The constant increase of vehicular demand at intersections hurts intersection crossing times and queue formation on avenues. This paper presents a microsimulation model using a stochastic algorithm for traffic signal control based on two variables: queue length formation and crossing time delays. To address this problem, a stochastic algorithm is built using Python software with the total lengths of each traffic light cycle and the two variables to be solved (queue formation and crossing delays) as parameters, and the number of iterations to be performed will be included in the algorithm. These variables will be used as key indicators to obtain the green and red-light duration times for each traffic light at both intersections. To validate the effectiveness of the proposed model, different traffic simulations are performed in the intersection section using Vissim 9.0. Using this microsimulation software, it was possible to recreate the behavior of the vehicles that were analyzed using a filmographic record. Different iterations were used to determine the trend of improvement in the model using the results of the algorithm through different phase diagrams used in the microsimulation. By using the first iterations of the times generated by the algorithm, a considerable improvement in the performance of the traffic light control system was observed. A notable decrease in crossing times has been achieved, with reductions ranging between 5% and 9%. In addition, a considerable decrease in queuing has been observed, with a reduction ranging from 20% to 34%.

Keywords: queuing, delays, stochastic, algorithm, semaphores insert

Evaluation of the Compressive and Flexural Strength of Permeable Concrete with Substitution of Fine Aggregate by Glass Fiber in Urban Roads of the Peruvian Highlands

Authors: Erik Chavéz; Herber Cuba; Manuel Silvera; Fernando Campos

Abstract: Rigid permeable pavements are draining structures that allow the filtration and management of water in a sustainable manner. Unlike traditional systems, this type of material would avoid problems or failures due to surface runoff, ponding, and runoff. However, due to this quality his stamina tends to drop. For this reason, a concrete mix was developed with the use of fiberglass to increase its mechanical properties. The following work shows the analysis and comparison of conventional rigid permeable concrete mixes and with the addition of 1%, 2% and 3% fiberglass instead of fine aggregate, designed with the ACI 255R-10 standard. The results show that the compressive behavior, with respect to the base, increases by 1% and decreases for 2% and 3% (Base concrete: 215.55, Mix 1%: 262.25, Mix 2%: 252.65 and Mix 3%: 235.20). In the same way, the results of flexural resistance show that the base concrete is 30.6 kg/cm2 and all exceed it, but the one that obtained the most resistance is mix 1 with 35.6 kg/cm2, which confirms its influence. of fiberglass augmentation. On the other hand, in the physical property of permeability, the results show more infiltration speed in mix 3 with 1.18 cm/s, where it can be deduced that it is due to the decrease in fine aggregate.

Keywords: Pervious Paving, Pervious Concrete, Fiberglass

Feasibility of using Choosing by Advantages to improve multicriteria decision making in the subcontracting of precast concrete slabs in multifamily housing

Authors: Lopez De La Cruz, B.I.O.| San Bartolome Rey, B.I.G.| Jorge De La Torre Salazar, M.I.

Abstract: Over the past few years, multi-family housing has been subject to increased complexity due to the demand in the housing market. Because of this, the subcontracting of precast concrete slabs is considered a good solution option due to its ample benefits such as time and labor savings. In addition, it is the most widely used structural element for this type of building. However, to obtain these benefits, a proper selection of precast concrete slab subcontractors is necessary. Therefore, it is necessary to have a selection method for the proper development of this process since a wrong decision will generate cost overruns and delays on site. Therefore, this research presents Choosing by Advantages (CBA) as a viable solution. The validation that is given through an expert judgment determines that the factors quality, delivery time and production capacity are the most important in the decision-making process. Finally, a multicriteria decision-making case was made for the subcontracting of precast concrete slabs highlighting the importance of the application of CBA in multi-family housing.

Prediction model by probabilistic methods for the evaluation of variables in underground mining pumping systems of variables in pumping systems in subway mining

Authors: Paul Peralta-Rodriguez, Jhonatan Peña-Cajaleón, Humberto Pehovaz-Alvarez, Carlos Raymundo-Ibañez

Abstract: Recurrent flooding in the mining works, deficiencies in the operation of pumps, unforeseen stoppages, and lack of water availability in the processes, affect the operations in the subway mine. The traditional solution adopted is to wait for maintenance times for its post evacuation, generating stoppages, consumption of water from the wells and inefficiency in the daily water demand. Therefore, this article presents a new approach that will expand the traditional methods by introducing a prediction model using probabilistic methods. This approach will allow the design of an optimal water distribution system, the efficient control in the maintenance and covering of the recirculated water demand inside the mine. Variables describing problems related to pump flow, pressure zoning and the type of pump distribution, either in series or in parallel in the pumping system, will be determined. Also, an average data of failure and maintenance times was collected and will be introduced to the '@risk' software where a comparison of three probabilistic methods will be generated.

Analysis of Conflicts and Delays of Cyclists, Vehicles, and Pedestrians at a Busy Intersection in Lima Downtown, Peru

Authors: Jose Silva, Vera Barua, Manuel Silvera, Fernando Campos.

Abstract: In Lima downtown, highly congested intersections with many cyclists and pedestrians can be observed, where conflicts are very common. Therefore, it is important to reduce conflicts to improve the mobility of all users at intersections. At the intersection of Garcilaso de la Vega and 9 de Diciembre avenues, located in the center of Lima, the behavior of the users was observed, especially that of the cyclists, where the spontaneous routes they have adapted to cross the intersection more quickly were visualized. In this study, two scenarios were evaluated: The first scenario used the current fixed traffic light cycle as the geometry of the location, and it also represented how cyclists cross through unplanned routes. In contrast, the second scenario involved adaptive traffic lights and formalized two routes for cyclists, allowing them to choose more than one alternative depending on the phase they are in when crossing the intersection. The Vissim software was used for modeling, and the SSAM methodology was employed for comparison, which counted the number of conflicts. As a result, the second scenario showed 18% fewer conflicts among users. Additionally, cyclists experienced 18% less delay.

A system for detecting objects and estimating their distance using a neural network

Authors: Joan Salcedo; Nehemias Ramos; Leonardo Vinces; Dante Vargas

Abstract: This article proposes using neural networks to solve the challenge of accurately measuring the distance of an object using cameras and digital image processing. For this, a neural network was trained using a data set that includes information on the distance in pixels of the centers of mass of the object detected by the cameras. This data was used to teach the network to make an accurate estimate of the actual distance of the object. Image analysis methods were also used in conjunction with images of the object previously captured and trained with YoloV8 on Roboflow. The results obtained showed a notable improvement in the precision that is obtained when measuring the distance without the tedious calibration that is had in the other approaches considered for this investigation. Overcame the challenges associated with camera calibration due to possible distortion, accuracy, and generalization generated by changing the environment, resulting in an effective solution with 90% accuracy percentage and a dense neural network with an input layer, a hidden layer and an output layer with 2000 training cycles. These results demonstrate the potential of neural networks and image processing to address distance measurement problems in various applications, such as robotics, road safety, and autonomous navigation.

Evaluation of the visibility distance with the Istram program on third-class roads with a high accident rate

Authors: Barzola, Luis; Colán, Fátima; Silvera, Manuel; Campos, Fernando; Silvera, Manuel; Palacios-Alonso, Daniel

Abstract: In Peru there are many roads where accidents occur due to their inadequate geometric design. The traffic accidents with the most incidents are of the side collision or collision type with a percentage of 42.73%, and distraction with 20.19% [1]. This shows that it is necessary to carry out a redesign on this road that seeks to reduce the percentage of accidents in the area. For the case study, a section of a 3km highway located in Santiago de Chuco, north of the city of Lima, was used. Thanks to the photogrammetric record of the current state of the road, sectors with geometric deficiencies were identified, such as visibility distance and safety in terms of precariousness in the use of signaling. Likewise, the evaluation carried out in the stopping and overtaking visibility distance concludes that with a constant speed of 30 km/h there are stretchs or sections that do not meet the necessary distance for its route.

Vehicular Conflict Assessment on a Road with Lane Reduction Using the SSAM Methodology

Authors: Diaz Crespo, Mariana Alexandra; Blas Cadillo, Silvia Rocío; Gonzales Baldeon, Shirley Alexandra; Damián Esperilla, Nicole Stefany; Giraldo Malca, Ulises Francisco

Abstract: In this article, an evaluation of the number of vehicular conflicts is carried out, in a section of road that is part of a traffic light intersection, with constant presence of traffic jams. In the trajectory of this section there is a reduction in lanes, variable lane widths and little uniformity, causing a bottleneck that produces different types of conflicts between vehicles. To carry out the evaluation, the VISSIM microsimulation software was used, here the real situation of the intersection is modeled and two new scenarios are proposed, in which geometric redesign proposals are made in the infrastructure of the section of road, in order to analyze variability in the number of vehicular conflicts. For the automatic counting of conflicts, the Surrogate Safety model (SSAM) is used. Vehicular conflicts are categorized according to their crossing collision angle (crossing), rear end collision angle (rear end) and lane change (lane change), and their severity levels in relation to the time before collision (TTC). The results indicate a count of 3916 conflicts in the microsimulation of the real situation. In the first proposed scenario, 2,231 conflicts were counted, which corresponds to a 43% reduction in relation to the current situation; while in the second scenario 3,835 conflicts were counted, a reduction of 2%. The TTCs ranged between 0.52 and 0.70, indicating a high risk of collision on the road.

Keywords: microsimulation, vehicular conflicts, VISSIM, SSAM, road safety.

Evaluation of the operational performance of unconventional intersections with high traffic flow

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Abstract: Currently, one of the worrying problems in vehicular traffic is the large number of cars making left turns at intersections. This phenomenon has generated various challenges in terms of road safety, traffic fluidity and transportation efficiency. To face this situation, today, alternative and innovative solutions are being proposed through the design of unconventional intersections. One of these is the displaced left turn (DLT) intersection. However, given that intersections of this type are few in Peru, it is necessary to evaluate the operational performance of this type of intersections. Therefore, this study evaluates the operability of DLTs using a scenario comparison study based on selected performance measures. For this, the case of a conventional intersection in the city of Lima is evaluated, in which the DLT was implemented in two accesses that have a greater flow of vehicles. The evaluation indicates that the DLT intersection proposed in this study has a high potential to reduce vehicular delays but may increase the number of conflicts. The study concludes by stating that, although the design with DLT reduces vehicular delays by 31.25%, at the same time it has negative impacts by increasing the number of vehicular conflicts by 73.57%. As a recommendation, it is suggested that appropriate safety measures be adopted, which must be designed and put into practice in order to increase the operability of the intersection.