

# *Implementation of E-Bird Competition Based on Artificial Intelligence In Pressing Fraud on Organizer Management Birdsong Contest In The District Banyuwangi*

**A A Gde Satia Utama<sup>1</sup>**  
 Department of Accounting  
 Economic and Business Faculty  
 Universitas Airlangga  
 gde.agung@feb.unair.ac.id

**Hendri Arya Fernando<sup>2</sup>**  
 Department of Accounting  
 Economic and Business Faculty  
 Universitas Airlangga  
 hendri.arya.fernando-2014@feb.unair.ac.id<sup>2</sup>

**Abstract** - This research aims to design an operational information system e-bird competition using an integration website and online applications as well as ultrasonic sensor-based technology uses artificial intelligence in the detection of the fraud conducted by participants or members of the judges of birdsong contest. The methodology used was qualitative research with a descriptive analytical method. Meanwhile, the data used in this study using primary data through interviews with relevant sources and field observation to analyze the source of the problem that occurs such as the weak implementation of standards and the mechanism of birds chirping competition. The contribution of this his research has succeeded in drafting the operational information system by integrating website management data or online application for effectiveness and efficiency of birdsong competition with fraud detection data through artificial intelligence technology based on ultrasonic sensor analysis. The process of integration of the data displayed in the form of draft data flow diagrams, entity relationship diagram, and flowchart. The output of the proposed operating system reports on the readiness needs of the race, the report analyses the tastes of chirping mania, recapitulation the results of ticket sales, the report on the web activity and the competition application, the fraud and sanction reports of the participants, the fraud and sanction reports of the jury, the recapitulation of the winning points and the report of the winner. While from the proposed output side efficiency of the designing system there is a notification for participants and committee.

**Keywords:** E-Bird Competition, Ultrasonic Sensor-Based Artificial Intelligence, Operational Information System, Fraud

## I. INTRODUCTION

The impact of environmental issues has threatened several species of plants and animals. An example is the avian fauna of the most endangered species based on data from the Head of Unit of Communication and Development Knowledge Indonesian Bird. Puja Utama, head of the Directorate General for Natural Resources Conservation is based on data collected

from the National Geographic Indonesia 1,594 species of birds that exist in Indonesia, there are at least 300 types of endemic contained certain region some 122 species of endangered details are 18 species categorized as critical (Critically endangered), 31 species in the category (endangered) and 73 in the category of vulnerable (vulnerable). Among Maleo, the Javan hawk eagle, bird of paradise, yellow-crested parrots, cassowaries double wattle and so on. Of awareness of the conservation aim to improve, protect and maintain the bird species of bird lover mobilizing communities to set up a field organizer birdsong to preserve its existence by planting awareness of conservation, research and breeding rare birds. In addition to developing, breeding and breeding community organizer also organizes competitions birds chirping. Purpose of establishing the chirping of birds race event is to encourage more people who care and love to the presence of bird species for the race event can be used as a gathering place, relationship and discuss bird competition among fellow hobbyists and players race.

However, some major organizer in Indonesia which has its standards and rules in the management. Based on data obtained from the web omkicau.com says there is a major organizer in Indonesia include: Boy n Rush (BNR Indonesia), Radjawali Indonesia, Ranggolawe, Pelestari Burung Indonesia (PBI), Rashid Enterprise (RE), and so on. Regarding the differences in standards and rules are different - different causes a lot of complaints, protests, insults or slander of competitors. Most of them concerned about a condition where the judge does the behavior of fraud before and when the race held so that an assessment considered unfair and detrimental to a competitor. Injustice includes several reasons, including the judges taking bribes from the race, the jury did not see or missed provide rating points (ignored), the jury did not understand the material (stuffing) chirp.

Several previous studies as the reference of this study include research conducted [1] related to application design competition aims to streamline bird race schedule information, registration, and information of the winners. This research was

also supported by research conducted Pardosi, on the subject of research that utilizes sensor technology voice giving orders to perform certain activities [2]. This study also corroborated by previous studies conducted on the analysis of objects in front of the sensor to convert analog signals into digital signals and then displayed on the device used as media decision makers [2]. The study also confirmed by research conducted related to the use of sensor technology based on logic intelligence fuzzy to detect a fault sources, while the difference in research Khan using modeling methods Takagi-Sugeno-Kang (TSK) [3]. This research was also supported by research conducted about the organization of the contest organizers animal in determining the winner's decisions and avoid conflicts that might occur [4]. And all six of this study also corroborated by previous studies by Stuart-Fox et al related to the design and analysis of animal contest with the identification system capability and experience of animal fighting.

He designed purpose of this study was to design operational information system e-bird competition using online websites and applications integration as well as the use of ultrasonic sensor technology based on artificial intelligence (artificial intelligence) in the detection of violations (fraud) performed by the participants or unscrupulous competition jury.

Contributions are offered from this study is the successful drafting of an operational information system to integrate data management of the website/application online to the effectiveness and efficiency of birds chirping with the data race detection of violation (fraud) through artificial intelligence technology (artificial intelligence) based analysis of ultrasonic sensors. The integration process data is displayed in the form of design data flow diagrams, flowcharts and entity relationship diagrams. Output proposed operational systems, among others, report the violation (fraud) and sanctions participant, reports of violations (fraud) and sanction judges and the recapitulation of the points and report the winners. While the output proposed side, there are a notification system design efficiency notifications 1, 2, and 3.

According to Leitch Rosses in, Information Systems is a system within an organization reconcile the needs of daily transaction processing, support operations, managerial and strategic activities of an organization and provide certain outside parties with the necessary reports [5]. Meanwhile, according to Management Information Systems (MIS) is a study of the use of computer-based information system in which a business enterprise to collaborate in computer science and knowledge management through the way work is organized, coordinated and scalable to make decisions more good and fast [6].

Development of digital technology pushing the man's work easier. Sophisticated technology especially information technology can simplify business activity that is so complex; information technology can produce information that is reliable, timely, relevant, understandable and has been tested to perform the functions of planning, control activities and management decisions [7]. Meanwhile, according to O'Brien, James A in 2011 artificial intelligence is a field of science and technology from various disciplines such as computer, biology, linguistics, mathematics and engineering, the goal of AI is to develop computer technology that has the ability to think, walk, talk and

feel (sensor) which simulates the computer's main functions such as human intelligence includes reasoning ability, learning and problem solving. The realm of artificial implementation intelligence, artificial intelligence according to James A. O'Brien in 2011, among others, cognitive science. The realm of intelligence is based on the study of biology, psychology, mathematics and several disciplines focused on the research of how the human brain to think and learn. Then, processing of information is the basis for the development of computer-based applications in artificial intelligence. Implementation of the cognitive science, artificial intelligence consist of expert systems and knowledge-based systems as well as some of the reasoning ability to develop information systems. In addition to the application of cognitive science, artificial intelligence can process data that are incomplete or ambiguous with the completion of a semi-structured information system.

Deviant behavior (fraud) is a false representation of a material fact that is done or made by one party against another party to deceive and encourage others to give the truth of what the desired party the [6]. There is a representation of fraudulent acts by is a false representation of statements that are not disclosed, a material fact in encouraging a person to take action, there is purpose and intent to defraud a statement of one's belief is justified is a factor relied upon by the parties harmed, fraud or loss caused casualties harmed.

## II. RESEARCH METHOD

The authors in this study used a qualitative approach with a descriptive analytical method. Qualitative research is research that specifically understands every motive of human behavior to determine the basic goals of someone to do something, through this research we can analyze the various factors that motivate a person to behave. While the definition of analytical research is a study with an analysis of the work or activities aimed at investigating in detail and fully any activity or human work of these results can be given advice on the needs of the future [8]

## III. RESULT AND DISCUSSION

### A. *System Weaknesses conventional*

After direct observation in the field as well as in-depth interviews with administrators, organizers and some participants there are weaknesses in the system that applied conventionally. First, the lack of efficiency and losses from the cancellation of the registration ticket that is done manually. Ticketing accept booking tickets well before the day was intended at the time of D-day tickets can be immediately redeemed by the participants, but the fact the field of participants do not redeem tickets have been booked even though many participants were queuing to get tickets via transfer and willing to do before.

Second, the registration procedure in place (on the spot) long and risk ticket the same number. Enrollment in place which enabled the long queue leading to the increasingly conducive atmosphere. Participants who crowded the committee resulted in no concentration ticketing gantangan

write numbers and race sessions often occur as a result gantangan the same number for two participants. A double ticket number is commonly found when participants will raise the bird if the ticket / gantangan still provided one of the parties will move to the empty ticket numbers. But the problem is when tickets have been exhausted or full, one of the participants will succumb join the next session of the schedule to wait long back from here is very detrimental to the participants.

Third, the absence of a database system participants leads organizer hard in promoting and identifying taste chirping mania against certain classes of birds chirping race. A participant database system functions that greatly affects the performance of an organization. The downside of organizer the race birds chirping lies in the lack of documentation of the system from each event held. From the beginning of preparations lack a database that contains the identity of the participants, the class race followed, recap the results of the assessment until final results are winners. So the organizer less attention to good relations with the participants, the less efficient means of promotion, the response of participants complains because of the lack of evidence until the publication of the results of the event were inadequate.

Fourth, the assessment showed the jury less transparency because the points are still limited to the recaps on paper. The size of the arena chirping bird measuring about 20 meters x 10 meters with the number of participants nearly 70-80 fields of numbers. With the number of judges in charge of not more than seven people, every jury charge should assess 10-12 birds. The scoring system during the race, the jury should mobile see a bird working (sound) from beginning to end without jamming time. Or without lag Limitations of judges to assess up to 80 participants felt less able to cover all participants; in other words, there would be birds that are not observed or not observed by the jury. Besides the valuation is done manually too prone to fraud committed jury because the jury assessment activities less monitored by the system. Weakness relies on a manual scoring system based on the ability of judges and recaps the value of board without the support of technology that facilitates decision-making will make it difficult to detect rogue jury committee/jury who commit fraud.

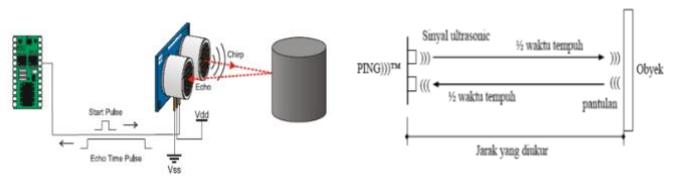
Fifth, participants disorderly behavior during the implementation of the event is the hallmark of which is easily found in the implementation of competition chirping birds. About the non-shouting policy during a bird chirping event is a rule that is difficult to obey by the participants because it will be a reason to throw accusations that the performance of the jury is not good or from the side of the participants cannot play the birds chirping competition. From the board organizer, birds chirping race undisciplined behavior and do not comply with existing regulations by the participants as very disturbing scream when assessing the performance of judges to anarchy if the complaint is not addressed. When faced with both sides blaming each other would have, because of the organizer bird race manager assumes participants shout, complaint or anarchy are people who do not know about birds with assessment standards that have been set. But based on the explanation of the participants, the jury ignored the bird and assessing

performance that is not by the interests of objectivity due to hit. The inadequacies of such procedures should be addressed through the development of a system that is integrated with artificial intelligence so that decisions can be objective, effective and efficient in solving problems related to the management of birds chirping race in Banyuwangi.

**B. Design System**

**1). Job Overview Ultrasonik sensor**

The system developed for proposed is to use ultrasonic sensor technology to analyze an object and give voice commands to control a particular activity. Analysis of the object consists of activities to monitor the performance of the birds; the jury assessed participants' behavior and control of the race.



**Source:** Budiarmo, Z. & Agung P. (2015).

**Figure 4.1 Ultrasonic Sensor Overview**

Figure 4.1 shows an illustration system technology work ultrasonic sensors previous research by Parallax ultrasound sensor method that can be used to determine the distance of an object in front of the sensor. The system design work proposed by the authors adopted from these studies to analyze and monitor the performance of the birds as evidence of objective assessment and transparent, supporting ratings manually by jury, to monitor the behavior of judges with the aim of ensuring the jury has assessed (moving) on one at a bird that the behavior of fraud can be minimized and monitor the behavior of the participants.

**2) Proposed System**

The proposed system design concept on the detection of fraud by organizer the race manager birds chirping in Indonesia, especially in Banyuwangi is generally described in the context of the diagram below.

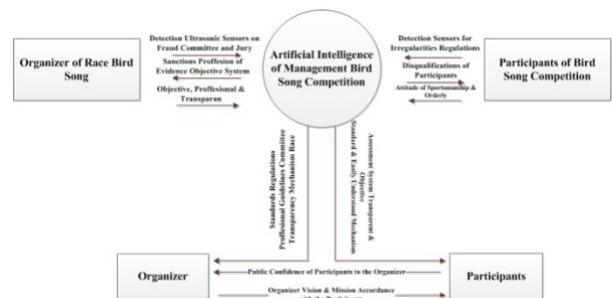
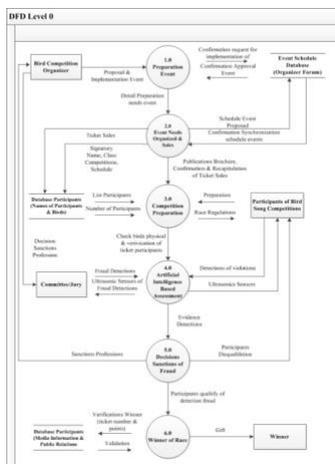


Diagram context described above is a public trust relationship of the participants to the organizer and vice versa. Management of birds chirping based on race ultrasonic assessment sensors, artificial intelligence is a means to be to analyze and detect fraud through detection sensor disqualification decision to the participants and the profession sanctions.

A description of the overall process that occurs at the race management of chirping birds depicted in the Data Flow Diagrams (DFD) Level 0 follows.



Explanation of the picture above explains that there are six preparatory event management processes, manage requirements, race preparations, intelligence-based assessment, artificial determination of sanctions for violations and the decision of the winners.

However, the proposed system is depicted in the Data Flow Diagram Next, will be explained focusing on the detection of a violation (fraud) conducted judge and the competitor using the detection of ultrasonic sensors as well as website design online and more information needs efficiently through the design of notifications as a means of informing the detection of violations committed, Here's the explanation.

a) Artificial Intelligence based assessment

process is related to the assessment activities carried out automatically using an ultrasonic sensor technology directly on the object.

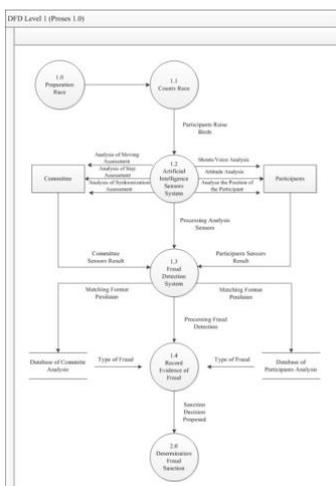
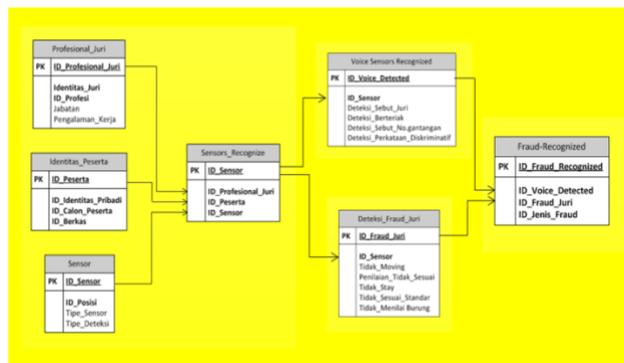


Figure DFD Level 1 process based Assessment Artificial Intelligence is the process of monitoring of the jury and the participants in detecting violations. The first process, a count of the jury, in which participants raised birds to the arena for competition. Second, the detection system ultrasonic sensor that is a process of assessment of judges from moving assessment, stay judgment and conformity assessment and individual assessment which consists of analysis cries, analytical attitude order of participants and detection to ensure participants do not cross the line racetrack that tela determined. Third, the results of the detection of violations will be adjusted automatically to the format commands assessment as a disqualification decision. Record evidence of the offense into the output of the assessment process that will be sent to participants and jury as notification management effectiveness and efficiency. The system design is also designing database an integrated with Entity Relationship Diagram below.



In the picture diagram Entity relationship above there are three databases basic forming the database. main third database The including master ID\_profesional\_juri, ID\_peserta, and ID\_sensor. Each foreign key will form a database sensors\_recognized as the detection of a violation (fraud) that is readable by the ultrasonic sensor. From database sensor\_recognized the will form the main database ID\_fraud\_recognized. They will be used as evidence of an objective record for violations committed by judges or participants.

3) Proposed Website / Online Application

Concept design of a website/application online destined for the participants who will carry out the registration of birds chirping race. It is expected that the registration can be done online will streamline time without registering directly in place at risk the doubles, as well as the resulting conditions, are not an orderly queue. Following the design of the website /applications online are proposed.



Pictured above is the design of the website /application online that can be downloaded from Google Play and AppStore. This application is called Chirping Bird Contest Forum business, where all the organizers publicize the event which will be held in the future. The content of the website/application is the integration of information containing the race, race results, vision and mission organizer and race registration and payment process automatically through bank transactions were designated to receive payment of the race.

**4) Effectiveness and Efficiency**

The output of ultrasonic sensor technology management fraud behavior-based detection, artificial intelligence is intended to facilitate information can be received quickly and real-time by the participants. Output used for the benefit of the effectiveness and efficiency of management in the form of notifications received through the account website/application online. Following notification of the proposed form.

RECORD OF ELECTRONICS EVIDENCE FOR FRAUD OF PARTICIPANTS BIRD SONG CONTEST			
REKORD BUKTI ELEKTRONIK TERBUKTI YANG DIBERIKAN KEPADA PESERTA YANG MELAKUKAN PELANGGARAN			
No. Bukti Elektronik: 141789482 - 141789482 - 141789482			
ID PARTICIPANTS		DATA RECORD OF ULTRASONICS SENSORS SYSTEM FOR FRAUD OF BIRD SONG CONTEST WHICH WILL BE MADE OF EVIDENCE & PRINTING ELECTRONICS DEVICE ARE AS FOLLOWS :	
ID_Participants : ID_Bird482	ID_Bird_Class : Lov-ebird		
NIK : 141789482	Bed_Name : Kopusus		
Name : Eho Supardi	Number_Ticket : 8		
Phone Number : 141789482			
ID_Fraud_Type : Standards & Guidelines Contest of Bird Song	ID_Sensors	Sensors AC455Ultra	
Screaming : 10 Point	Points Reduction	00	
Calling Committee : 10 Point	Sanctions	*Banned/Blacklist	
Go to Field : 10 Point	Type_Detection	Fraud_Participants	
Calling Number Contest : 10 point			
Amateurist : 40 Point			
Based on the detection of a system of ultrasonics sensors that have been adapted to the standards and guidelines for the implementations of competition bird song contest, the concerned on behalf of:			
Name : Eho Supardi	Eho Supardi		
Address : Dusun Kojan Kabat Rt 04/03 Kab. Banyuwangi			
Have commit an offense as describe above is accompanied by a reduction in points, the you are expected with respect to co-operation in carrying out the sanctions are given race organizer manager bird song contest, the following points to learn:			
<ol style="list-style-type: none"> <li>1. Unable to access the website application birds song contest</li> <li>2. Cannot register the bird song contest with the online system and manual system</li> <li>3. Sanctions not be avoided if the participants do not apply for the lifting of sanctions</li> <li>4. Terms and bird song contest manager's decisions is final</li> </ol>			

Alert on an electronic record of evidence on the violation (fraud) conducted by the participants.

DECISION LETTER OF ORGANIZER BIRD SONG CONTEST			
REKORD OF ELECTRONICS EVIDENCE ON FRAUD PROFESSIONAL ETHICS OF JUDGES BIRD SONG CONTEST			
REKORD BUKTI ELEKTRONIK TERBUKTI YANG DIBERIKAN KEPADA JURY PELAKSANAAN			
No. Bukti Elektronik: 141789482 - 141789482 - 141789482			
ID_Professional_Committee		DATA REKAM SIFAT SENSOR ULTRASONIK ATAS PELANGGARAN PELAKSANAAN LOMBA BURUNG KECAU YANG AKAN DISIAGAKAN ALAT BUKTI & CETAK PERANGKAT ELEKTRONIK ADALAH SEBAGAI BERIKUT:	
ID_Professional_Committee : ID_PFR726095648248	ID_Organizer : Radwandi Indonesia		
NIK : 141789482	ID_Period_Score : 2012		
Name : Rendi Widada	ID_Permission : Assessment Committee		
Phone Number : 089446812482			
ID_Fraud_Type : Committee professional standards of bird song contest	ID_Sensors	Sensors AC455 Ultra	
Not assessment 1 number of birds 1 number 10 points	30 Points	Points reduction : 45	
Concessions Items : 10 Points	Sanction	*Letter of warning 1 *Suspension 2	
Based on the upper detection system of ultrasonics sensors that have been adapted to the standards of professional ethics of judge amateur bird song contest, the committee concerned with the name:			
Name : Rendi Widada			
Address : Kabupaten Ngoplanggung rt/03/05 Kac. Dnt Kab. Banyuwangi			
Has commit an offense as described above is accompanied by a reduction in points, then you are expected with respect to cooperation in carrying out the sanctions are given contest by organizer manager bird contest, the following points should be noted, that :			
<ol style="list-style-type: none"> <li>1. Based on the track record of past performance has not reached the limit of</li> <li>2. Decision of final on this event, the questions proved to have of final committee professional ethics with a limit of points by 45</li> <li>3. Warning letter 1 is given to the concerned</li> <li>4. Assessment and decision organizer bird song manager is absolute</li> <li>5. SP 1 with the sanction of suspension of track for 2 weeks please implemented by cooperative</li> </ol>			

The above notification is a record of electronic evidence in the form of a decision of the chairman of the organizer of the branch of Banyuwangi for violations committed by the judges.

Explanation of the notification management record contains evidence of violation participant identity and the identity of offenders who follow the race birds. Received notifications

contain information on the form of infringement committed, total point deductions and documentation in the form of photographs/recordings displayed for violations while the notification for the jury is informed in the form of a Letter of Decision signed by the chairman organizer manager of the birds chirping competition and the subject of professional sanctions conducted jury accompanied by a form of violation, reduction points and documentation in the form of photograph/recording violations.

**IV. DISCUSSION**

Management of chirping birds race in Banyuwangi district is still very weak, and there are many shortcomings. The weaknesses and shortcomings caused mistrust between organizer the race manager with the participants; the consequences are often found behavior are not satisfied, complain even to anarchy because there is a distinct conflict of interest between the manager of the race with participants. The problems faced by the operational information system e-bird competition is intended to facilitate the planning standards and mechanisms of the race to prepare the race management readiness of birds chirping. Design of operational information system e-bird detection technologies includes the development of intelligence-based ultrasonic sensors artificial to detect violations (fraud) was conducted by participants and jury as well as the development of websites /applications online aimed at the interests of the effectiveness of race registration and receipt of relevant information on the record evidence electronic notification forms of abuses.

**REFERENCES**

- [1] E. E. Izogo and I.-E. Ogba, "Service quality, customer satisfaction and loyalty in automobile repair services sector," *Int. J. Qual. Reliab. Manag.*, vol. 32, no. 3, pp. 250–269, 2015.
- [2] Z. Budiarmo and A. Prihandono, "Implementasi Sensor Ultrasonik Untuk Mengukur Panjang Gelombang Suara Berbasis Mikrokontroler," *Dinamik*, vol. 20, no. 2, 2015.
- [3] S. A. Khan, B. Daachi, and K. Djouani, "Application of fuzzy inference systems to detection of faults in wireless sensor networks," *Neurocomputing*, vol. 94, pp. 111–120, 2012.
- [4] G. Arnott and R. W. Elwood, "Information gathering and decision making about resource value in animal contests," *Anim. Behav.*, vol. 76, no. 3, pp. 529–542, 2008.
- [5] H. M. Jogyanto, "Sistem Teknologi Informasi Edisi III," *Andi. Yogyakarta*, 2005.
- [6] K. C. Laudon and J. P. Laudon, *Management Information Systems: Managing the Digital Firm Plus MyMISLab with Pearson eText--Access Card Package*. Prentice Hall Press, 2015.
- [7] S. Maharsi, "Pengaruh Perkembangan Teknologi Informasi Terhadap Bidang Akuntansi Manajemen," *J. Akunt. dan Keuang.*, vol. 2, no. 2, pp. 127–137, 2004.
- [8] M. Nazir, "Metode Penelitian Deskriptif." Jakarta: Ghalia Indonesia, 1988.
- [9] Talkingofmoney.com, "Bagaimana Inflasi Mempengaruhi Tabungan Kas Anda - TalkingOfMoney.com - majalah keuangan dan investasi," 2016. [Online]. Available: <https://id.talkingofmoney.com/how-inflation-affects-your-cash-savings>. [Accessed: 26-Jul-2018].
- [10] K. D. Miller, F. J. Jeffrey, and G. Mandelker, "The 'Fisher effect' for risky assets: An empirical investigation," *J. Finance*, vol. 31, no. 2, pp. 447–458, 1976.
- [11] R. A. Fisher, *The genetical theory of natural selection: a complete variorum edition*. Oxford University Press, 1999.