

RE-ENVISIONING A FUTURE IN SCHOLARLY COMMUNICATION

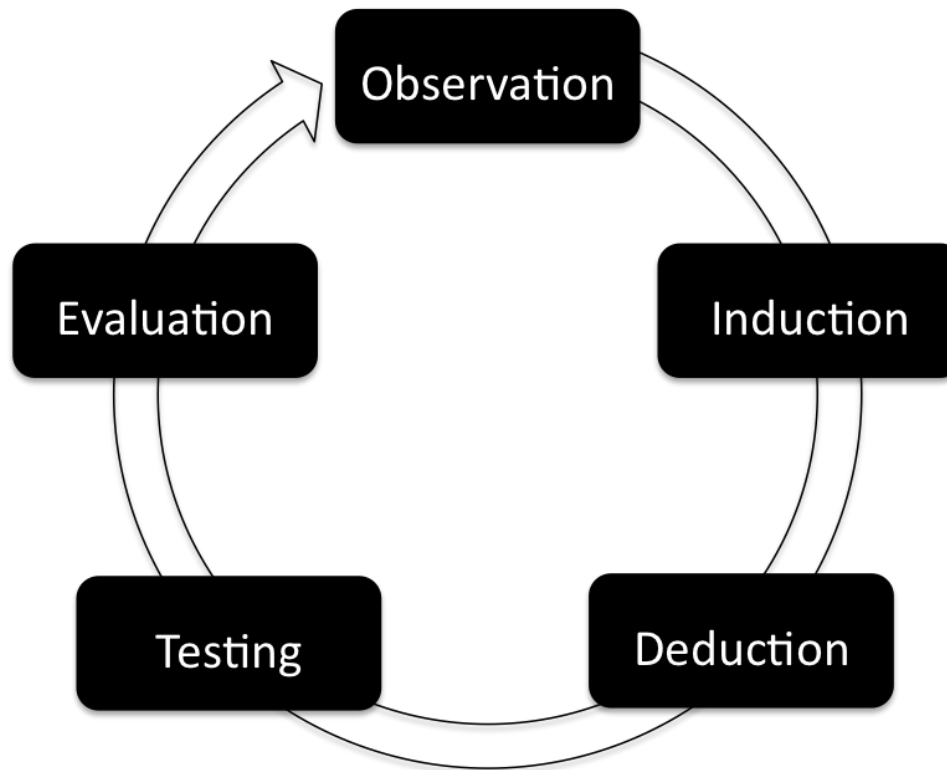
CHRIS HARTGERINK
@CHARTGERINK

RE-ENVISIONING A FUTURE IN SCHOLARLY COMMUNICATION

CHRIS HARTGERINK
@CHARTGERINK

PS. YES, THIS IS THE XKCD FONT.

THOUGHT EXERCISE:
WHAT SCHOLARLY
COMMUNICATIONS SYSTEM COULD
WE COME UP WITH TODAY?



1666

To the Right Honourable
WILLIAM Lord VISCOUNT BOUNCKER,
CHANCELLOR to Her MAJESTY,
AND
PRESIDENT to the ROYAL SOCIETY, &c.

MY LORD,



After I had dedicated the First Volume of these Philosophical Occurrences to the R. Society, to whose service I have dedicated my self, I thought it my next duty to present the Second to your Lordship, who have for so many years with so high and universal an Applause presided in that illustrious Assembly, and there given full proof both of the vast extent of your knowledge, and the incomparable solidity of your judgement in all the various Arguments and Matters there produced, observed, experimented and discoursed of. This, my Lord, though it deserves a far better Pen to be proclaim'd to the world, than mine; yet did I think, I might be suffer'd in this crowd to cast in my voice, and to deliver the truth and my persuasion thereof in these plain expressions. To which I shall add no more but my humble acknowledgments for your Lordships particular favour and goodness, in condescending on all occasions, to encourage these (though rude and undigested) Communications, and thereby to fortify (against the obloquies of some singular men) the endeavours of the Author for the improving and enlarging his Philosophical Commerce; which, being done, may perhaps be a means to render these Papers less inconsiderable for the future. I am,

My Lord,
Your Lordships

LONDON,
March 2. 1667
8

Very humble, and very much
obliged Servant,

Henry Oldenburg.

Soc. Reg. Secr.

1666

To the Right Honourable
WILLIAM Lord VISCOUNT BOUNCKER,
 CHANCELLOR to Her Majesty,
 AND
 PRESIDENT to the ROYAL SOCIETY, &c.

MY LORD,



After I had dedicated the First Volume of these Philosophical Occurrences to the R. Society, to whose service I have dedicated my self, I thought it my next duty to present the Second to your Lordship, who have for so many years with so high and universal Applause presided in that illustrious Assembly, and there given full proof both of the vast extent of your knowledge, and the incomparable solidity of your judgement in all the various Arguments and Matters there produced, observed, experimented and discoursed of. This, my Lord, though it deserves a far better Pen to be proclaim'd to the world, than mine; yet did I think, I might be suffer'd in this crowd to call in my voice, and to deliver the truth and my persuasion thereof in these plain expressions. To which I shall add no more but my humble acknowledgments for your Lordships particular favour and goodness, in condescending on all occasions, to encourage these (though rude and undigested) Communications, and thereby to fortify (against the obloquies of some singular men) the endeavours of the Author for the improving and enlarging his Philosophical Commerce; which, being done, may perhaps be a means to render these Papers less inconsiderable for the future. I am,

My Lord,
 Your Lordships

LONDON,
 March 2. 1667

8

Very humble, and very much
 obliged Servant,

Henry Oldenburg.

Soc. Reg. Secr.

2017

Int. J. Electron. Commun. (AEU) 76 (2017) 11–17



Contents lists available at ScienceDirect
**International Journal of Electronics and
 Communications (AEU)**

journal homepage: www.elsevier.com/locate/aeue



Regular paper

WLAN indoor localization method using angle estimation

Yong Zhang, Lianlian Lu*, Yujie Wang, Chen Chen

School of Computer and Information, Hefei University of Technology, Anhui 230001, China



ARTICLE INFO

Article history:
 Received 2 September 2016
 Accepted 16 March 2017

Keywords:
 Angle estimation
 Indoor localization
 KNN
 RSSI
 SVM

ABSTRACT

In WLAN indoor localization systems, an improved position fingerprinting algorithm is proposed to obtain higher accuracy. The algorithm constructs the nonlinear relationship between received signal strength indication (RSSI) values and the angles formed by horizontal line and the line from transmitters to receivers, instead of traditionally training the relationship between RSSI values and physical coordinates. The localization area is divided into a number of small rectangular areas, and the test points are sorted out by K-Nearest-Neighbor (KNN) algorithm. In a small rectangular area, RSSI values and the angles are trained by support vector machine (SVM), so as to estimate the angles formed by horizontal line and the line from test points to each access point (AP). Finally, coordinates of the test points are estimated using the geometric relationship. Two experimental sections have been conducted under different conditions: one is in the laboratory, and the other is in a typical office space. The proposed algorithm is compared with v-SVM algorithm, KNN algorithm and ML algorithm. Experimental results prove that our proposed algorithm outperforms other methods in term of localization accuracy under various situations.

© 2017 Elsevier GmbH. All rights reserved.

1. Introduction

In recent years, the development of wireless communication technology and the increasing demand for location-based services promote the localization technology. Global positioning system (GPS) [1,2] can provide accurate localization information outdoors, but it is based on additional infrastructure like use of repeaters in indoor environment which consist of a directional antenna for receiving a non-overlapping set of GPS satellites, a LNA (Low Noise Amplifier), a power amplifier for compensating the antenna and cable losses, and a transmitting antenna for re-radiating the amplified GPS signals [3]. All of this additional infrastructure enhances the cost and complexity. But the demands of the accurate indoor localization is also exponentially increasing like in medicine industry, public safety, transportation system etc. Similarly, a precise indoor localization is required in shopping malls, airports, museums, hospitals, parking lots, prisons, and warehouses. Therefore, the research of indoor localization is of great significance. Today's increasingly popular wireless networking technology is considered as a key to solve this problem [4,5].

Based on whether direct ranging measurement is required, there are basically two types of methods: range-based [6–8] and

range-free localization. The former is based on Time of Arrival (TOA) [9,10], Time of Different of Arrival (TDOA) [11,12], Angle of Arrival (AOA) [13,14], Phase of Arrival (POA) [15] and RSSI. TOA, TDOA and AOA estimate the coordinates of the target point by geometric measurements method-triangulation, trilateration, hyperbolic with the obtained information of angle, distance, and range difference etc. In the Range-based methods, RSSI method builds a path loss model to obtain distance from transmitter to receiver. Paper [7] presented an environmental-adaptive path loss model. The blind node utilizes the absolute value of RSSI to generate the phase of the corresponding receiver's location so as to determine the correction coefficient of indoor multipath fading. The estimation accuracy and adaptability of the path loss model proposed in [7] are significantly higher than that of the traditional path loss model but it is not suitable for the NLOS (Non Line Of Sight) environment with several rooms, generating reflection, scattering, diffraction and acute decay of walls. Paper [16] proposed a hybrid algorithm that combines the reference data collection procedure with the path-loss prediction model. It requires only a few samples to be measured, thus significantly reduces the sampling time and the test of the signal strength database is estimated by using path-loss prediction model. This algorithm reduces the sampling time without affecting the location accuracy of the locating system, but it needs accurate environment parameters when constructing the propagation model.

* Corresponding author.

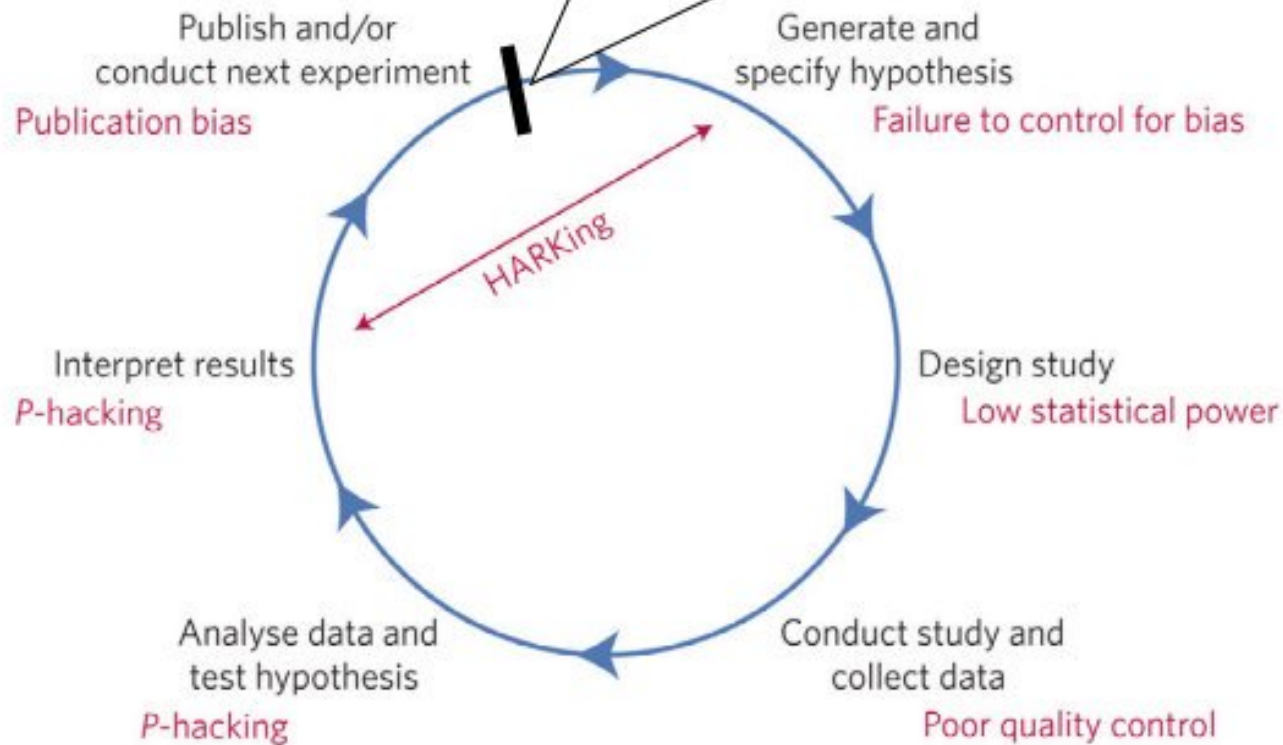
E-mail addresses: zhangyong@hust.edu.cn (Y. Zhang), liulanlian@hust.edu.cn (L. Lu), 63249012@qq.com (Y. Wang), jackiechen@hust.edu.cn (C. Chen).

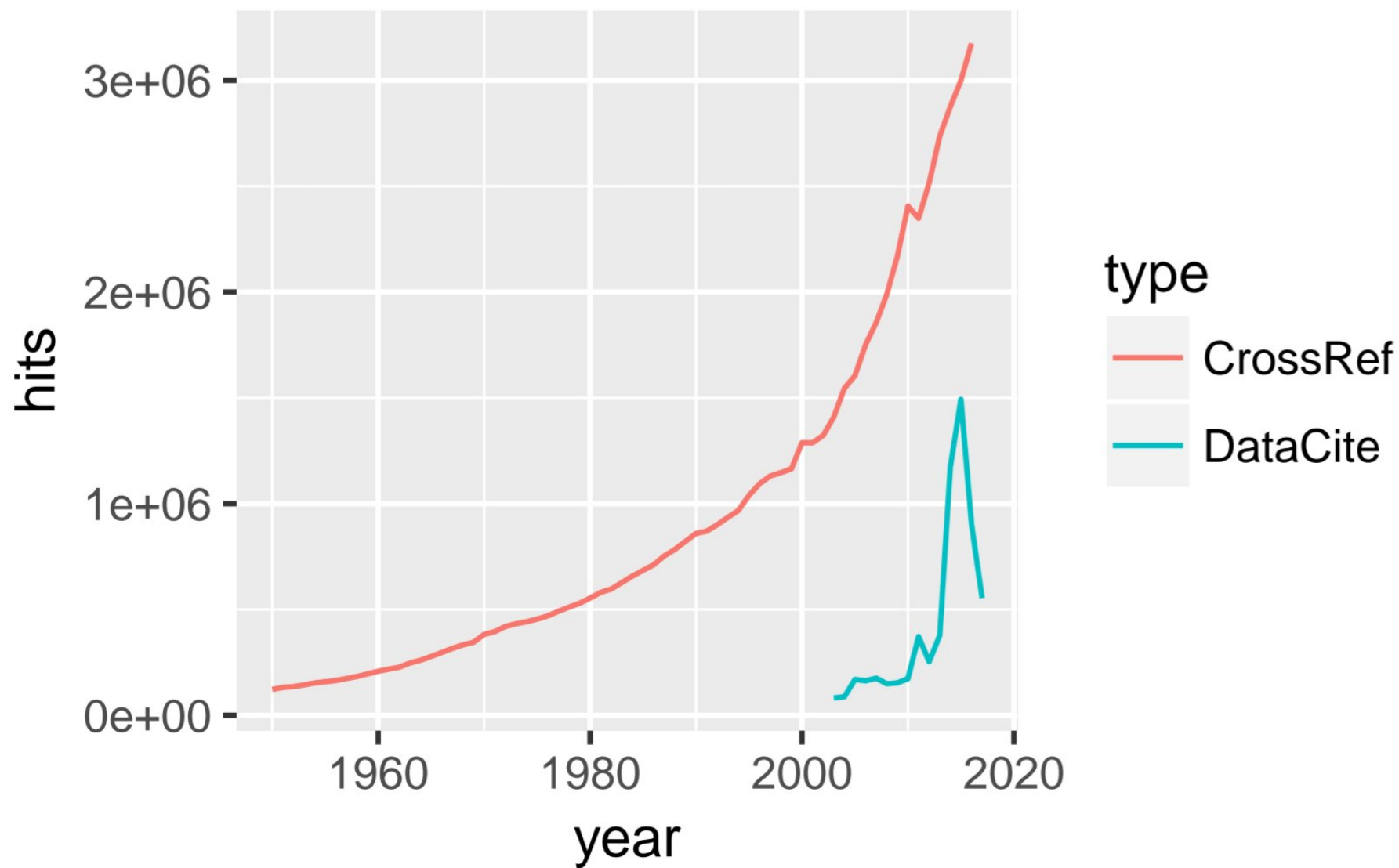
<http://dx.doi.org/10.1016/j.ijelecom.2017.03.019>
 1434-8411/© 2017 Elsevier GmbH. All rights reserved.





HI I'M PAYWALLY! MY JOB IS
TO PREVENT YOU FROM
ACCESSING KNOWLEDGE
YOU NEED





REVIEWS

ACCESS

PREREGISTRATION

PRESERVATION

PROTOCOLS

DATA

MATERIALS

REPLICATION

ETC



REVIEWS

ACCESS

PREREGISTRATION

DUCT TAPE SOLUTIONS WON'T LAST

DATA

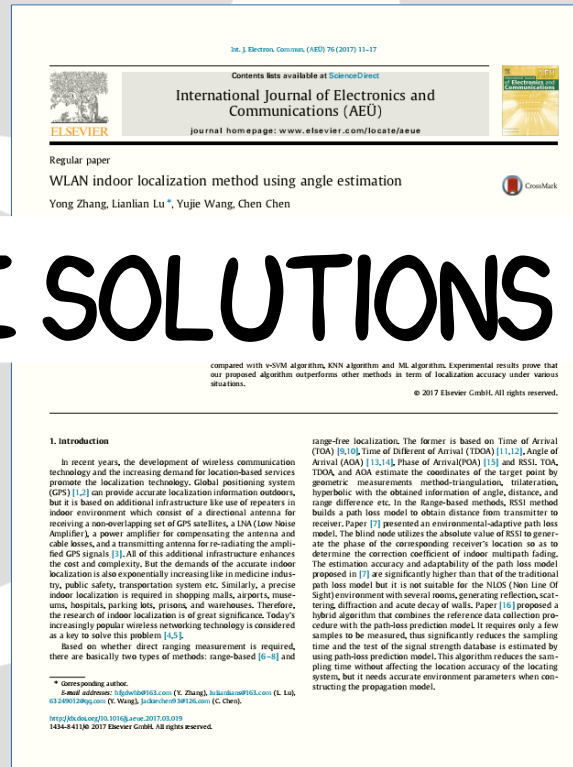
PRESERVATION

PROTOCOLS

MATERIALS

REPLICATION

ETC



REVIEWS

ACCESS

PREREGISTRATION



DUCT TAPE SOLUTIONS WON'T LAST

BECAUSE THEY DON'T SOLVE THE PROBLEM

MATERIALS


REPLICATION

ETC

Yongqiang Wu, Yujie Chen, and Yanyan Chen
School of Management, Tsinghua University, Beijing 100084, China

Received 2 Sep. 2013
Accepted 16 Mar. 2014


Indoor localization systems, an improved positioning accuracy. The algorithm constructs the nearest neighbor (RSSI) values and the angles formed by the access points instead of traditionally training the relationship between the test points and physical coordinates. The localization area is divided into a number of regions. The Nearest-Neighbor (KNN) algorithm, supported by support vector machine (SVM), is used to estimate the distance from test points to each access point based on the geometric relationship. Two experiments are conducted: one is in the laboratory, and the other in the real environment. The results show that the proposed algorithm outperforms other methods such as KNN, SVM, and other methods.



Journal of
Electronics
Technology
of China

ISSN 1002-0712 (Print)
ISSN 2095-4282 (Online)

Volume 40 Number 10 October 2018
October 2018




International Journal of Electronics and
Communications (AEEU)

Journal homepage: www.ijee.com.cn

WLAN indoor localization method using angle estimation

Ying Zhang, Xianfa Li*, Xiang Wang, Qian Chen

School of Computer and Information Science, Beijing University of Aeronautics and Astronautics, Beijing 100191, China
e-mail: zhangying@buaa.edu.cn, lixf@buaa.edu.cn, wangxiang@buaa.edu.cn, chenqian@buaa.edu.cn



ARTICLE INFO

KEYWORDS:
WLAN; localization; angle estimation; indoor localization

ABSTRACT:
Indoor localization is an important part of the localization technology. This paper presents a WLAN indoor localization method based on angle estimation. The method uses the angle of arrival (AOA) of the signal to estimate the position of the user. The method is simple and easy to implement. The simulation results show that the method can achieve high localization accuracy.

INDEXING TERMS:
WLAN; localization; angle estimation; indoor localization

1. Introduction

Indoor localization is an important part of the localization technology. It has many applications in the field of navigation, security, and emergency response. The localization technology can be divided into two categories: outdoor localization and indoor localization. Outdoor localization is based on the Global Positioning System (GPS) and other satellite navigation systems. Indoor localization is based on the Wireless Local Area Network (WLAN) and other indoor positioning systems.

The WLAN indoor localization method based on angle estimation is a simple and effective method. It uses the angle of arrival (AOA) of the signal to estimate the position of the user. The method is simple and easy to implement. The simulation results show that the method can achieve high localization accuracy.

2. System architecture

The system architecture is shown in Figure 1. It consists of a User Equipment (UE) and a Base Station (BS). The UE sends a signal to the BS, and the BS estimates the position of the UE based on the AOA of the signal.

3. Angle estimation method

The angle estimation method is based on the AOA of the signal. The BS receives the signal from the UE and estimates the AOA of the signal. The AOA is estimated by measuring the phase difference between the signals received at different antennas.

4. Simulation results

The simulation results show that the method can achieve high localization accuracy. The localization error is less than 10 meters. The method is simple and easy to implement.

5. Conclusion

The WLAN indoor localization method based on angle estimation is a simple and effective method. It can achieve high localization accuracy. The method is simple and easy to implement.

References

- [1] X. Li, Y. Zhang, X. Wang, and Q. Chen, "WLAN indoor localization method based on angle estimation," *Journal of Electronics and Communications (AEEU)*, vol. 40, no. 10, pp. 1000-1005, 2018.

Corresponding Author:
Xianfa Li, School of Computer and Information Science, Beijing University of Aeronautics and Astronautics, Beijing 100191, China.
E-mail: lixf@buaa.edu.cn

Received: 2018.08.15
Accepted: 2018.09.10

Copyright: © 2018 IEEE. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

range-free localization. The former is based on Time of Arrival (TOA) [9,10], Time of Different of Arrival (TDOA) [11,12], Angle of Arrival (AOA) [13,14], Phase of Arrival (POA) [15] and TDOA, and AOA estimate the coordinates of the geometric measurements method-triangular hyperbolic with the obtained information of range difference etc. In the Range-based method, it builds a path loss model to obtain distance from the receiver. Paper [7] presented an environment model. The blind node utilizes the absolute value of the phase of the corresponding received signal to determine the correction coefficient of indoor localization. The estimation accuracy and adaptability of the proposed in [7] are significantly higher than the path loss model but it is not suitable for the multipath environment with several rooms, generating reflecting, diffraction and acute decay of walls. Paper [16] proposed a hybrid algorithm that combines the reference data collection procedure with the path-loss prediction model. It requires only a few samples to be measured, thus significantly reduces the sampling time and the test of the signal strength database is estimated by using path-loss prediction model. This algorithm reduces the sampling time without affecting the location accuracy of the locating system, but it needs accurate environment parameters when constructing the propagation model.

<http://dx.doi.org/10.1016/j.aue.2017.03.019>
1434-8411/© 2017 Elsevier GmbH. All rights reserved.

SINGLE POINT OF FAILURE



Regular paper

WLAN indoor localization method using angle estimation

Yong Zhang, Lianlian Lu*, Yujie Wang, Chen Chen

School of Computer and Information, Hefei University of Technology, Anhui 230001, China



ARTICLE INFO

Article history:
Received 2 September 2016
Accepted 16 March 2017

Keywords:
Angle estimation
Indoor localization
KNN
RSSI
SVM

ABSTRACT

In WLAN indoor localization systems, an improved position fingerprinting algorithm is proposed to obtain higher accuracy. The algorithm constructs the nonlinear relationship between received signal strength indication (RSSI) values and the angles formed by horizontal line and the line from transmitters to receivers, instead of traditionally training the relationship between RSSI values and physical coordinates. The localization area is divided into a number of small rectangular areas, and the test points are sorted out by K-Nearest-Neighbor (KNN) algorithm. In a small rectangular area, RSSI values and the angles are trained by support vector machine (SVM), so as to estimate the angles formed by horizontal line and the line from test points to each access point (AP). Finally, coordinates of the test points are estimated using the geometric relationship. Two experimental sections have been conducted under different conditions: one is in the laboratory, and the other in a typical office space. The proposed algorithm is compared with v-SVM algorithm, KNN algorithm and ML algorithm. Experimental results prove that our proposed algorithm outperforms other methods in term of localization accuracy under various situations.

© 2017 Elsevier GmbH. All rights reserved.

1. Introduction

In recent years, the development of wireless communication technology and the increasing demand for location-based services promote the localization technology. Global positioning system (GPS) [1,2] can provide accurate localization information outdoors, but it is based on additional infrastructure like use of repeaters in indoor environment which consist of a directional antenna for receiving a non-overlapping set of GPS satellites, a LNA (Low Noise Amplifier), a power amplifier for compensating the antenna and cable losses, and a transmitting antenna for re-radiating the amplified GPS signals [3]. All of this additional infrastructure enhances the cost and complexity. But the demands of the accurate indoor localization is also exponentially increasing like in medicine industry, public safety, transportation system etc. Similarly, a precise indoor localization is required in shopping malls, airports, museums, hospitals, parking lots, prisons, and warehouses. Therefore, the research of indoor localization is of great significance. Today's increasingly popular wireless networking technology is considered as a key to solve this problem [4,5].

Based on whether direct ranging measurement is required, there are basically two types of methods: range-based [6–8] and

range-free localization. The former is based on Time of Arrival (TOA) [9,10], Time of Different of Arrival (TDOA) [11,12], Angle of Arrival (AOA) [13,14], Phase of Arrival (POA) [15] and RSSI. TOA, TDOA, and AOA estimate the coordinates of the target point by geometric measurements method-triangulation, trilateration, hyperbolic with the obtained information of angle, distance, and range difference etc. In the Range-based methods, RSSI method builds a path loss model to obtain distance from transmitter to receiver. Paper [7] presented an environmental-adaptive path loss model. The blind node utilizes the absolute value of RSSI to generate the phase of the corresponding receiver's location so as to determine the correction coefficient of indoor multipath fading. The estimation accuracy and adaptability of the path loss model proposed in [7] are significantly higher than that of the traditional path loss model but it is not suitable for the NLOS (Non Line Of Sight) environment with several rooms, generating reflection, scattering, diffraction and acute decay of walls. Paper [16] proposed a hybrid algorithm that combines the reference data collection procedure with the path-loss prediction model. It requires only a few samples to be measured, thus significantly reduces the sampling time and the test of the signal strength database is estimated by using path-loss prediction model. This algorithm reduces the sampling time without affecting the location accuracy of the locating system, but it needs accurate environment parameters when constructing the propagation model.

* Corresponding author.

E-mail addresses: hfgdw@163.com (Y. Zhang), lulianlian@163.com (L. Lu), 63249012@qq.com (Y. Wang), jckchen@163.com (C. Chen).

SINGLE POINT OF FAILURE

AHEM...

Int. J. Electron. Commun. (AEÜ) 76 (2017) 11–17

Contents lists available at ScienceDirect

International Journal of Electronics and Communications (AEÜ)

journal homepage: www.elsevier.com/locate/aeue

Regular paper

WLAN indoor localization method using angle estimation

Yong Zhang, Lianlian Lu*, Yujie Wang, Chen Chen

School of Computer and Information, Hefei University of Technology, Anhui 230001, China

ARTICLE INFO

Article history:
Received 2 September 2016
Accepted 16 March 2017

Keywords:
Angle estimation
Indoor localization
KNN
RSSI
SVM

ABSTRACT

In WLAN indoor localization systems, an improved position fingerprinting algorithm is proposed to obtain higher accuracy. The algorithm constructs the nonlinear relationship between received signal strength indication (RSSI) values and the angles formed by horizontal line and the line from transmitters to receivers, instead of traditionally training the relationship between RSSI values and physical coordinates. The localization area is divided into a number of small rectangular areas, and the test points are sorted out by K-Nearest-Neighbor (KNN) algorithm. In a small rectangular area, RSSI values and the angles are trained by support vector machine (SVM), so as to estimate the angles formed by horizontal line and the line from test points to each access point (AP). Finally, coordinates of the test points are estimated using the geometric relationship. Two experimental sections have been conducted under different conditions: one is in the laboratory, and the other in a typical office space. The proposed algorithm is compared with v-SVM algorithm, KNN algorithm and ML algorithm. Experimental results prove that our proposed algorithm outperforms other methods in term of localization accuracy under various situations.

© 2017 Elsevier GmbH. All rights reserved.

home > UK > education

University of Cambridge

Cambridge University Press faces boycott over China censorship

Academics pressure publisher as Beijing mouthpiece says western institutions can leave if they don't like 'the Chinese way'

Arrival angle of L TOA, point by eration, ice, and method itter to ith loss gener-o as to fading. model ditional Line Of n, scat-posed a on pro-y a few mpling ated by ie sam-ocating en con-

1,716

Tom Phillips in Beijing

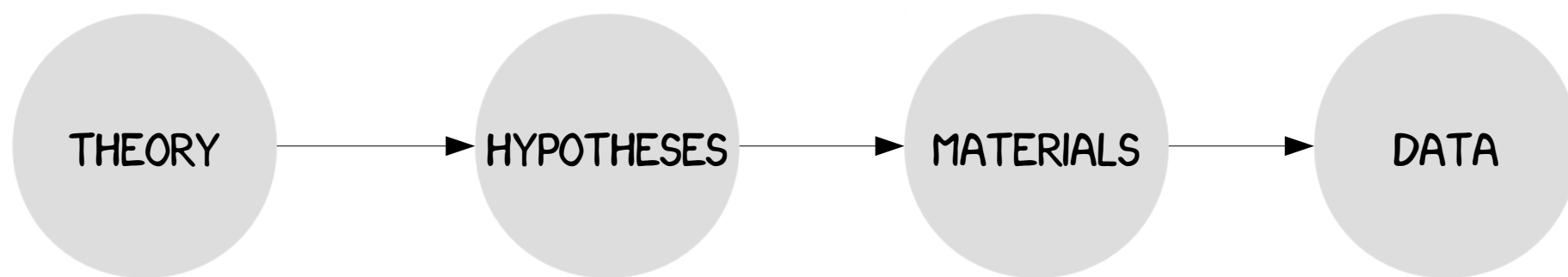
<http://dx.doi.org/10.1016/j.aue.2017.03.019>

1434-8411/© 2017 Elsevier GmbH. All rights reserved.

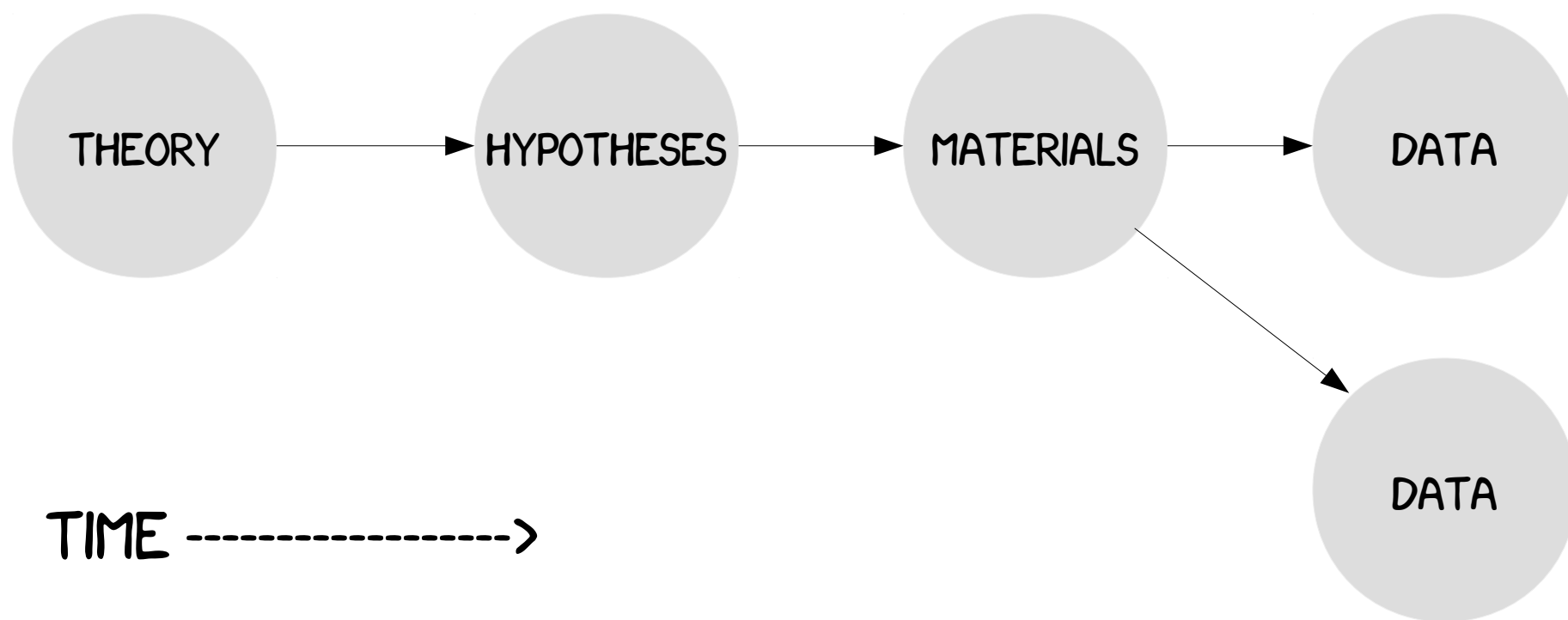
SINGLE POINT OF FAILURES REMOVED BY
INCREASING INCLUSIVENESS,
REDISTRIBUTION!

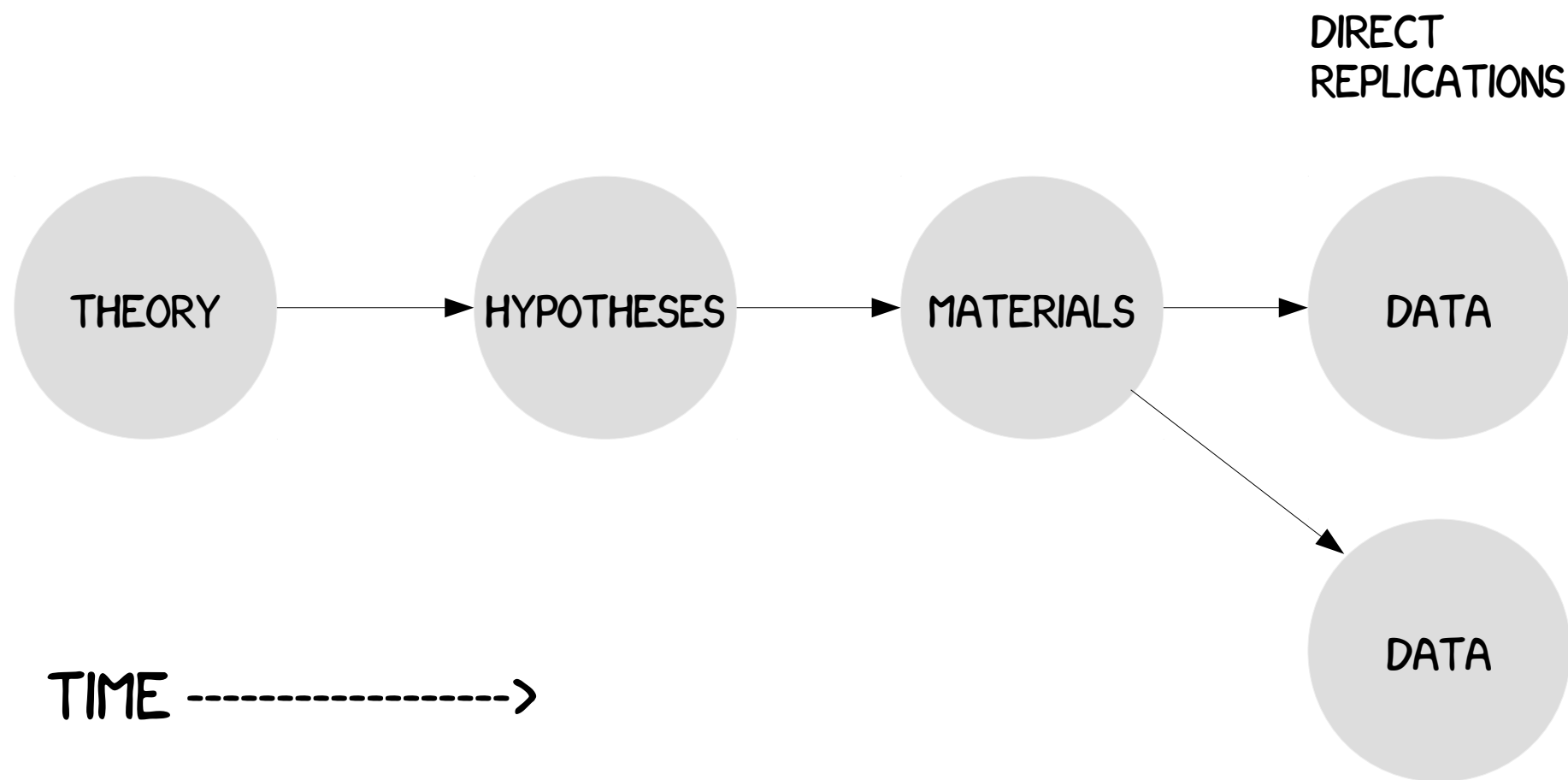
CENSORSHIP AND ADJUSTMENT OF
CHRONOLOGY, EVIDENCE NOT POSSIBLE
WHEN EVERYONE CAN VERIFY

THIS IS WHY TRANSPARENCY GOES
BEYOND IDEALS, IT IS ABOUT RIGOUR



TIME ----->

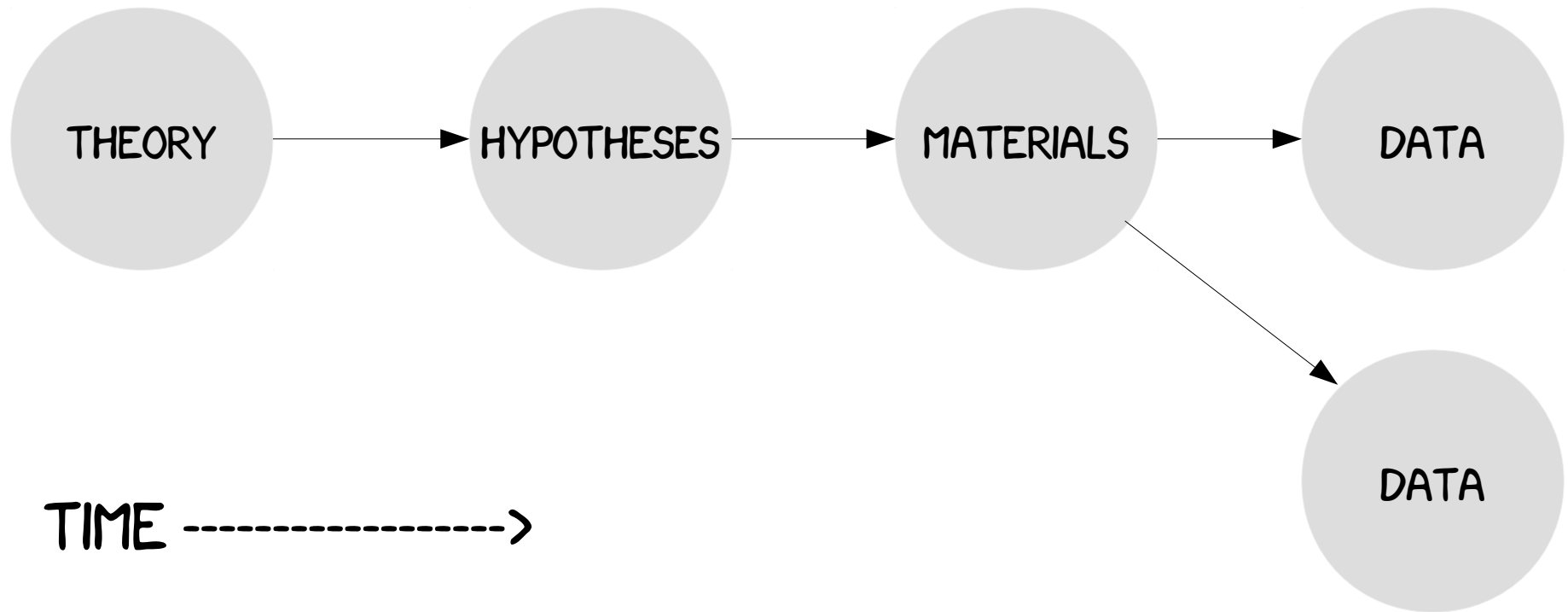




PREREGISTRATION

"CONCEPTUAL"
REPLICATIONS

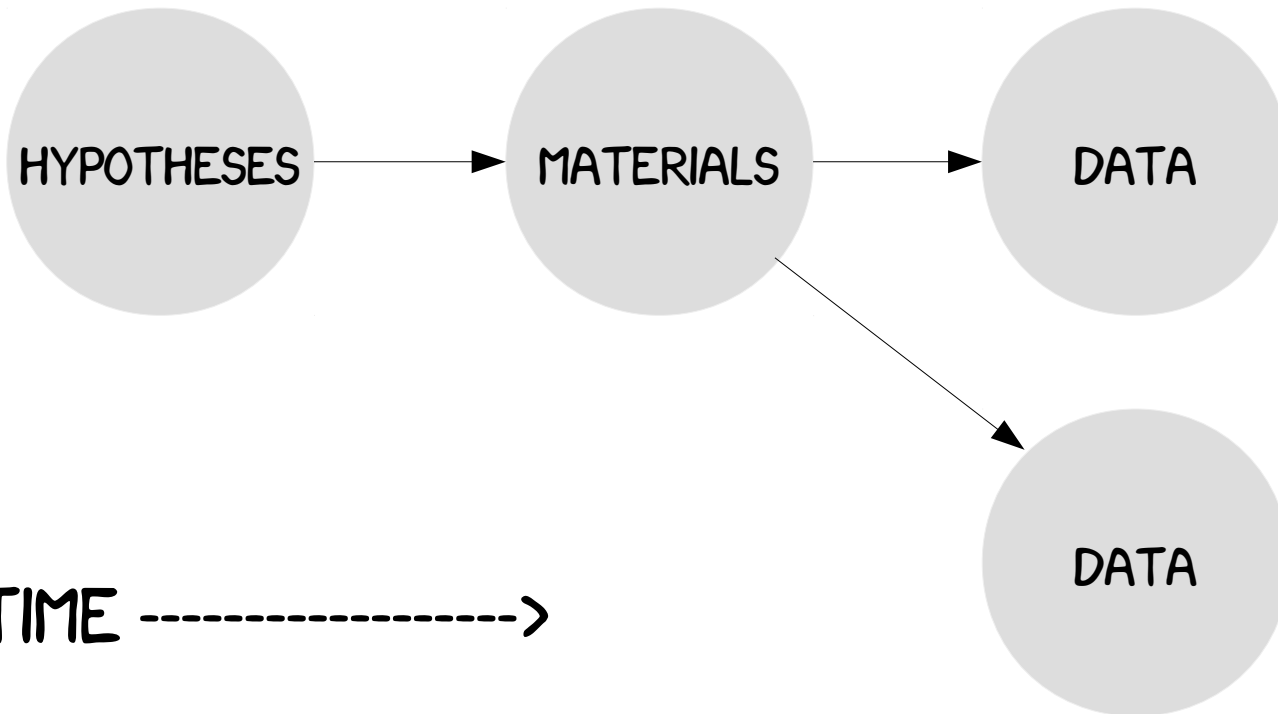
DIRECT
REPLICATIONS



PREREGISTRATION

"CONCEPTUAL"
REPLICATIONS

DIRECT
REPLICATIONS

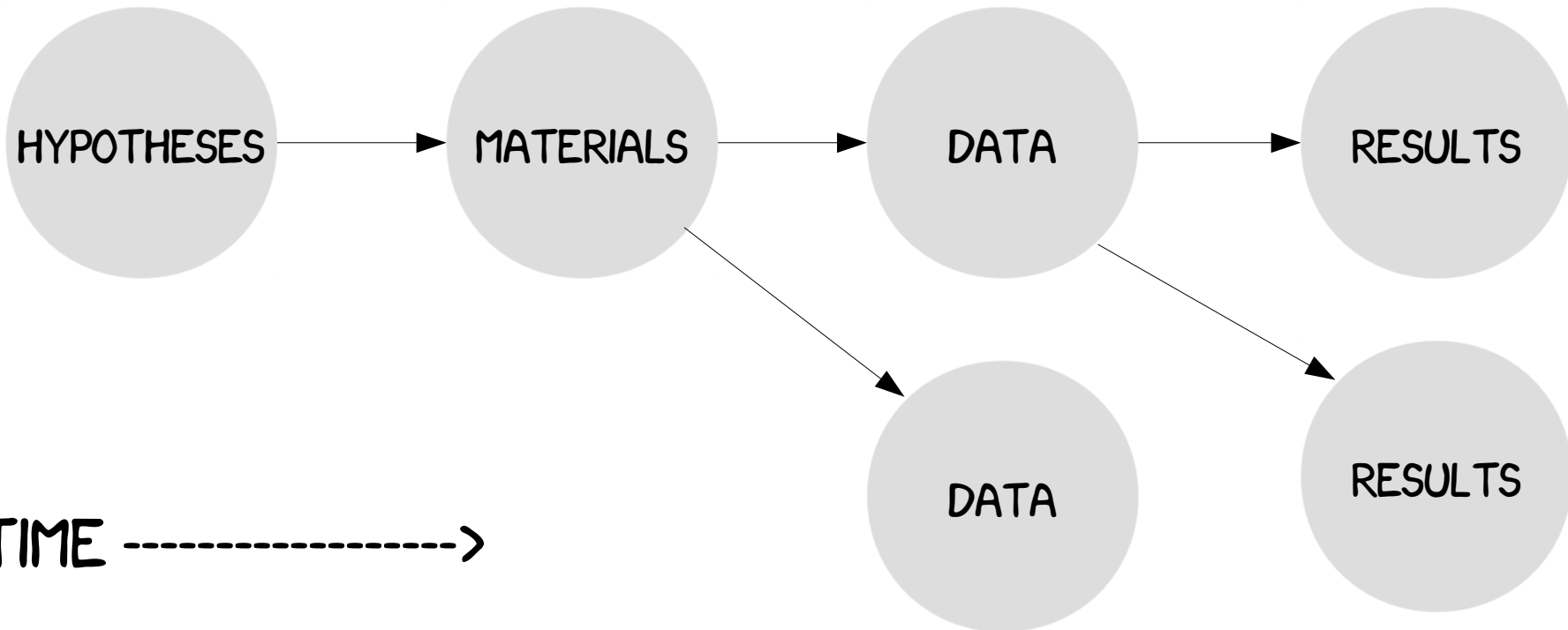


PREREGISTRATION

"CONCEPTUAL"
REPLICATIONS

DIRECT
REPLICATIONS

REANALYSIS



PUT ALL OF THIS ON P2P NETWORK

`DAT`

APPEND ONLY!

DON'T NEED BLOCKCHAIN FOR
INTEGRITY

+

INTEGRATES ACCESS FOR ALL

PAPERS WON'T SOLVE THE
PROBLEMS PAPERS CAUSE

@CHARTGERINK
[BIT.LY/2017FLA](https://bit.ly/2017FLA)