

# 找到生命中 之所愛與所長

半導體技術專家水沼仁志

One Place, One Love, One Vocation  
—Semiconductor Engineer  
Hitoshi Mizunuma

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台灣半導體產業在全球發光發熱，完整均衡的供應鏈有賴護國神山群從元件到技術的通力合作。日本籍的台灣東芝電子零組件公司營業企畫與半導體事業部行銷部副協理水沼仁志，在台灣找到他的天命，深耕台灣半導體產業超過20年，樂於與產業界分享最新技術與趨勢，2020年歸化為台灣人。然而，23年前他到台灣的原因，卻是為了「愛」。

*The fabulous global success of Taiwan's semiconductor industry has depended in no small part on a comprehensive and well-balanced industrial supply chain whose members cooperate closely on everything from devices to technologies. Hitoshi Mizunuma is associate general manager of the Discrete Marketing Department in the Sales Management & Semiconductor Division of Toshiba Electronic Components Taiwan. A native of Japan, Mizunuma found his life's mission in Taiwan. During more than 20 years toiling away in Taiwan's semiconductor industry, he's always been happy to share information with industry peers on the latest technologies and trends. A naturalized citizen since 2020, it was love that prompted him to come to Taiwan 23 years ago.*

工程師 Engineering





與家人一起是生活中最大的幸福。  
Time with family is the happiest thing in life.

週日上午十點，濱江市場人聲鼎沸，水沼仁志由太太陳麗如騎著摩托車，載著他買菜。來到台灣超過20年，他還是不敢在台灣騎摩托車。水沼太太根據先生規劃好的一週食譜，有效率地買完菜，由太太付錢，先生跟在後面提菜。

不像日劇裡的「半澤直樹」總是很晚下班，負責半導體產線應用工程以及技術行銷的水沼仁志，這幾年來，五點下班，回家煮飯，他系統地建立了200多道食譜，煮飯前，從電腦打開「チキン南」（南蠻雞）與「白身魚の香り蒸し」（蒸魚）食譜，自製南蠻漬醬汁、塔塔醬，將炸好的南蠻雞端上桌，這道菜是女兒的最愛，另外用水波爐煮秋刀魚給愛吃魚的岳父。晚上七點，他回到書桌，開始在家加班，與廠商視訊，處理工作上的問題。

看似台灣版「昨日的美食」裡的律師寬史郎，力求準時下班，在買菜時精打細算，為妻兒親手烹調料理，「居家型大叔」水沼仁志，工作上處理的卻是高端深奧的半導體元件與嵌入式韌體的技術支援。

然而，23年前水沼仁志到台灣的原因，並非是被日本公司外派到台灣，而是為了遷就正在熱戀中的女友，婚後計劃隨著妻子到台灣定居。

## 為愛來到台灣

當時還在日本東京工業大學就讀機械工程的水沼仁志，認識了同在蕎麥麵店打工的台灣留學生陳麗如。兩人相戀三年決定相守一生。水沼仁志考慮到，若由陳麗如在日本找工作，不如學理工的他到台灣找工作容易，因此他們決定到台灣共組家庭，卻遇到第一個難關。

雙方父母親認為要先存錢才能結婚，水沼決定先留在日本，在東京一家系統整合商工作，陳麗如也回到台灣在華航工作。兩地相思，水沼住在爸媽家，省吃儉用，兩年存了第一桶金，他說：「那時沒有LINE，生活中最多的花費是講國際電話，每天晚上11點45分，與在台灣的女朋友講15分鐘，一個月講到六萬元日幣（約1.5萬元台幣）。」兩年不輟。

有著好學歷，還有軟體工作經驗的水沼，到台灣結了婚，卻發現找不到心中滿意的工作。為了克服第二個難關，「事豫則立」，他決定先花一年的時間好好學中文。

水沼用不太捲舌的日式國語笑著說：「當了一年給太太養的米蟲。」但陳麗如卻很佩服地讚賞：「先生有毅力又很努力，每天不畏辛勞，轉三班巴

水沼仁志能以流利的國語，分享電子產業最新趨勢與市場現況。（水沼仁志提供）

Hitoshi Mizunuma uses his fluent Mandarin to share information on the latest trends and market conditions in the electronics industry. (courtesy of Hitoshi Mizunuma)





水沼仁志的主要工作，是以馬達驅動及功率半導體元件技術，支援台灣客戶的製程。

Mizunuma's main job involves motor drive and power semiconductor device technologies, which support the manufacturing processes of Toshiba's Taiwan customers.

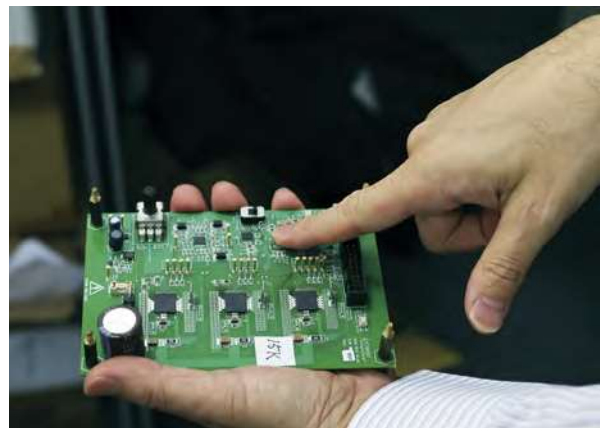
At 10 o'clock on a Sunday morning, with bustling crowds milling about in the Binjiang street market, Hitoshi Mizunuma arrives at the market on the back of a scooter driven by his wife, Chen Liru. He's here to buy groceries. After more than 20 years in Taiwan, he still doesn't have the courage to ride a scooter here himself. Mrs. Mizunuma efficiently buys the week's worth of groceries that her hubby set out in a list. She pays for the groceries, and Mizunuma follows behind carrying the bags.

Anyone familiar with the Japanese manga and live-action drama series *What Did You Eat Yesterday?* might well think of Mizunuma as the Taiwan version of the lawyer Shiro Kakei in that story. Just like Kakei, Mizunuma is a stickler for leaving the office as soon as his shift is over, carefully budgets all grocery purchases, and cooks all the meals for his wife and daughter. But don't be deceived by such homebody interests—at work he's a shark, busily arranging technical assistance to help other firms develop cutting-edge semiconductor components, embedded firmware, and much more.

Mizunuma came to Taiwan 23 years ago not because his Japanese company transferred him here, but because his girlfriend was from Taiwan. After they married, he followed her back to Taiwan and settled down in his adopted homeland.

#### To Taiwan, with love

Mizunuma was majoring in mechanical engineering at



the Tokyo Institute of Technology when he met Chen Liru, a student from Taiwan working at a soba noodle shop.

After three years together, the two decided to make things permanent, and it occurred to Mizunuma that rather than ask her to find work in Japan, it would be easier for him, with his tech expertise, to carve out a career in Taiwan. And so they started a family in Taiwan.

But despite his strong academic background and experience working in software, Mizunuma had a surprisingly tough time finding a job to his liking in Taiwan. "Well then," he thought to himself, "success goes to those who prepare, no?" So he spent an entire year concentrating on improving his Chinese.

The following year he found a job at the Taiwan



水沼仁志假日陪太太買菜，平日做菜則會參考電腦內建的200多道食譜。

Hitoshi Mizunuma goes grocery shopping with his wife on weekends, and then chooses recipes from more than 200 on his computer to cook up the family meals.



士到汐止跟我的舅舅學中文，中文進步很多。」隔年，水沼仁志如願地進入當時日本最大的半導體廠商東芝（Toshiba）在台灣的分公司工作。

由於以往日本在海外的分公司，同時需要雇用兩組人。以台灣為例，一組是日本派駐到台灣，負責與總公司溝通的日本員工；一組是台灣的工程師負責與在地廠商溝通。有專業又會中文的水沼，一人等於抵兩人用。

### 台日合作創新局

水沼仁志一開始在東芝擔任應用工程師（FAE），幫助客戶解決線路寫錯，或是那裡有bug等問題。半導體是一個對技術含量要求甚高的產業，原本只擅長軟體的他，又到台灣大學資訊工程研究所念了一個碩士，接著又直攻博士，鎖定電子計算機架構（computer architecture），補

足硬體知識的不足。

十年前，數位電視日趨普及，身為高頻半導體零組件龍頭的東芝公司，掌握數位電視調變器的關鍵技術，台灣的聯發科有功能很強的系統單晶片（SoC），在水沼居中串聯下，生產的日規數位電視行銷至南美洲，吃下100%的市場，水沼仁志因此二度獲得日本東芝模範員工的最高榮譽「社長獎」。

六年前開始，水沼仁志不定期在經濟部工業局舉辦的在職培訓或研討會中擔任講師，協助培訓產業人才。

全球最大電子產業媒體平台的《電子工程專輯》（EE Times TW）台灣總經理鄔重儀認為，台灣半導體製造與IC設計，在全球地位十分突出，而電子工程專業能夠改變世界的核心，就在於研發與設計。水沼仁志能以流利的國語，分享電子產業最新趨勢與市場現況，對高階工程主管與全球科技創投的領導人來說，可以說獲益良多。

### 終生志業，發揮所長

水沼仁志不諱言，常因為時機不好等原因，設計的新產品被取消或是退場。抱持著「有志者事竟成」信念的他說：「遇到失敗，就趕快回到實

branch of Toshiba, which at the time was the biggest semiconductor maker in Japan.

The overseas branches of Japanese companies back in those days maintained two parallel groups of employees. In Taiwan, for example, one group comprised Japanese nationals sent by the company to Taiwan to maintain communications with the parent company, while the other group comprised Taiwanese engineers who were responsible for communicating with local customers. But Mizunuma was a Japanese tech professional who also knew Chinese, and so was able to handle both roles.

#### **Bilateral cooperation brings results**

Upon joining Toshiba, Mizunuma first worked as a field application engineer, in which capacity he helped customers resolve circuit errors and bugs. But the semiconductor industry requires an extremely high level of technical expertise. Originally proficient only in software, Mizunuma earned a master's degree in the Department of Computer Science and Information Engineering at National Taiwan University, and continued directly on from there to the PhD program, where he focused on computer architecture to bring his knowledge of hardware up to speed.

A decade ago, digital televisions were steadily taking over the market. Toshiba, as a leading manufacturer of high-frequency semiconductor devices, con-

trolled key technologies needed for the manufacture of digital TV modulators, while Taiwan's MediaTek produced high-performance system-on-a-chip (SoC) products. With Mizunuma serving as liaison, the two companies got together to make digital televisions to Japanese specifications. The resulting products came to command a 100% market share in South America, and Mizunuma twice received the President's Award, Toshiba's top honor for its employees.

Six years ago, to help train talent for industry, Mizunuma started teaching at in-service training events and seminars organized by the Industrial Development Bureau of Taiwan's Ministry of Economic Affairs.

Grace Wu is the Asia Pacific general manager of Aspencore, the owner of US-based Electronic Engineering Times (EE Times), the world's largest digital industry media platform. In her opinion, the fact that Mizunuma is able to use his fluent Mandarin to share information on the latest trends and market conditions in the electronics industry is a big plus for senior tech executives and leaders of venture capital firms around the world.

#### **Lifelong devotion**

Mizunuma frankly acknowledges that the products he designs are often canceled or withdrawn from the market due to poor timing or other reasons, but he remains confident that where there's a will, there's a way:



水沼仁志做的家常日式烏龍麵，親自用油鍋炸麵麩，搭配豆皮、青菜、白煮蛋、肉片與蔥花，一點都不馬虎。

To make Japanese-style *udon* noodles, Hitoshi Mizunuma personally deep-fries wheat gluten pieces and mixes them in with tofu skin, green veggies, hard-boiled eggs, pork slices, and spring onions. He's a stickler on every detail.

驗室，與總部工程師同心協力找出解決方案，再提出新的產品來取代。」他曾在規畫客戶產線的過程中，被220伏特的高電壓觸電到，瞬間心臟麻痺，非常危險。

由於日本東芝在馬達驅控以及功率半導體元件的綜合市佔率位居全球第二，配合台灣在工業自動化與消費型家電製造的強項，以技術長期支援台灣客戶製程的他發現，要行銷自家的產品，「不只賺客戶的錢，更重要的是，要幫助客戶賺錢。」

以馬達驅控的微處理器為例，水沼仁志自製影片，模擬實機馬達的軟體，傳授最新「無感測無刷馬達向量控制演算法」的技術。他自豪地說：「當製程發生問題，同業還要回頭問公司的研發工程師時，我的客戶可以自行調整演算法的參數，或是自行調機，具備驅動下一代馬達的專業知識。」

全球家居設計及製造龍頭的建霖集團台灣總經理潘孟文，從擔任研發工程師時，就與水沼仁志相識，潘孟文指出：「面臨技術與產品開發的困境時，最能看出一個人的真本性，大多的人會推諉卸責，但水沼先生自我要求高，會持續溝通，堅持到底，這也是他能與我們成爲志同道合夥伴的原因。」

## 心之所屬，就在台灣

說到台灣與日本企業文化的不同，水沼仁志認爲，日本公司整體就像是一堅實的家族，人際關係很濃密，但不太容易與客戶有朋友般的往來。「在台灣，客戶可以當朋友，私下相處可以不談公事，話家常，這是很感動的。」

走路上班的水沼仁志，仍不改東京人走路很快的習慣，時速快達七公里（一般人約4.5公里）。喜歡學新知識的他，每天上午五點起床念書，他認爲，能夠整合不同領域的技術，「不只很有趣嘛！而且只有我能夠做到。」

在台灣每兩週泡一次湯、每週維持到紀伊國書屋或淳久堂書店的習慣，水沼仁志說：「說中文時會覺得自己就是台灣人；說日文時，才會覺得自己是日本人。」但現在大部份時間都是說中文，他眉毛下彎含蓄地笑著說，上次與日本總公司連絡時，連「新冠肺炎」都突然忘了日文怎麼說了。

唯有現就讀政治大學的獨生女水沼翠里，會與爸爸說著家鄉話。日本有個常用的詞彙「生き甲斐」（Ikigai），指追求生活的價值與喜悅，對水沼仁志來說，台灣，是他生活中溫馨與確切的幸福，亦是貢獻專業的所在。 □

水沼仁志帶著岳父岳母同遊姬路城。（水沼仁志提供）

Hitoshi Mizunuma with his wife and in-laws at Himeji Castle in Hyogo, Japan. (courtesy of Hitoshi Mizunuma)





水沼仁志認為在台灣的工作能讓他發揮所長。  
Hitoshi Mizunuma feels his work in Taiwan affords  
the chance to make good use of his abilities.

“When you experience failure, you have to hustle back to the laboratory and work with other engineers to find solutions and roll out a new replacement product.”

Toshiba Japan commands the second-largest global market share for motor drives and power semiconductor devices. Mizunuma has discovered that Toshiba, by tapping into Taiwan’s strengths in industrial automation and consumer household appliance manufacturing, “can do more than earn money from its customers; more importantly, it can help its customers earn money.”

He states with pride: “When there’s a problem in a manufacturing process, our competitors have to go back to head office R&D engineers for help, but our customers can take the initiative to adjust algorithm parameters or adjust equipment on their own. They have the professional expertise to drive next-generation motors.”

Kelven Pan is the Taiwan general manager of Runner Group, a world-leading provider of interior design services and manufacturer of interior furnishings. As a former R&D engineer and a long-time acquaintance of Mizunuma, Pan says: “Mr. Mizunuma expects a lot of himself. He never stops communicating, and sees things through to the end. That’s why he’s a close and like-minded partner of our company.”

#### Heart and home in Taiwan

Always eager to learn new things, Mizunuma gets up every morning at 5 a.m. to engage in study. He takes delight in his work of integrating different types of technologies: “It’s fun! And furthermore, I’m the only one who can get it done.”

Mizunuma has become quite at home in Taiwan, and says: “When I speak in Japanese, I feel I am Japanese. When I speak in Mandarin, I feel I am Taiwanese.” But these days he speaks Mandarin most of the time. Indeed, he admits with a chuckle that the last time he got in touch with the head office in Japan he suddenly couldn’t remember how to say “novel coronavirus” in Japanese.

His one child, a daughter named Cuili who is currently enrolled at National Chengchi University, is the only one around that he can speak with in his native tongue. There’s a term in Japanese—*ikigai*—which refers to a special something that brings joy and makes life worth living. For Mizunuma, Taiwan is what brings warmth to his life and a sure-fire feeling of happiness. And on top of that, Taiwan is where he practices his profession. □

(Esther Tseng/photos by Jimmy Lin/  
tr. by David Mayer)